United States Department of Agriculture

NRCS

Natural Resources Conservation Service

In cooperation with Michigan Department of Agriculture, Michigan Agricultural Experiment Station, Michigan State University Extension, and Michigan Technological University

Soil Survey of Keweenaw County Area, Michigan

How To Use This Soil Survey

General Soil Map

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

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

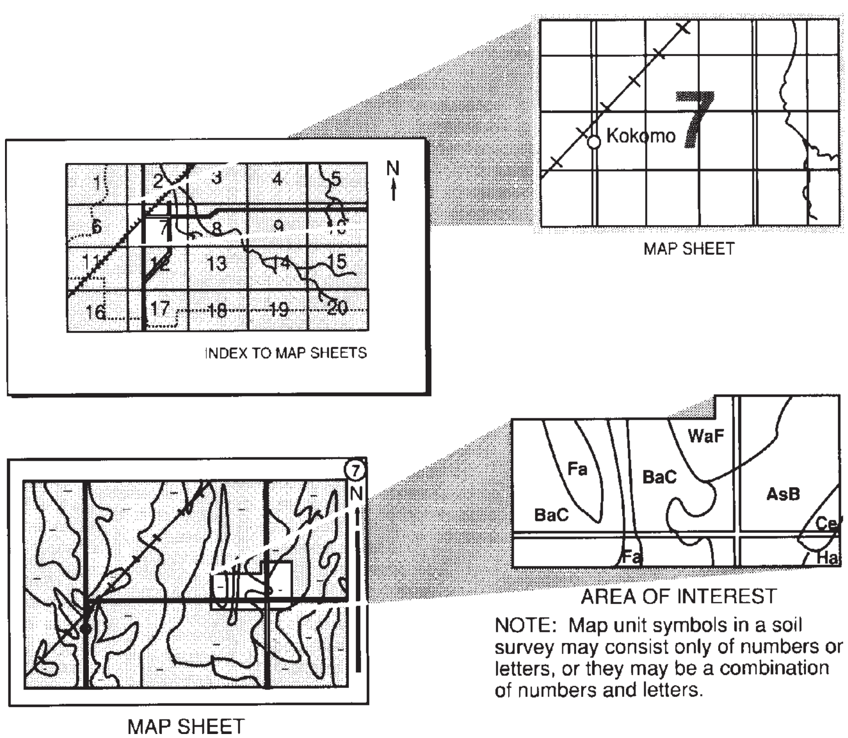
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

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

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

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



National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service, the Michigan Department of Agriculture, the Michigan Agricultural Experiment Station, Michigan State University Extension, and Michigan Technological University. The survey is part of the technical assistance furnished to the Houghton-Keweenaw County Soil and Water Conservation District. The Keweenaw County Board of Commissioners provided financial assistance.

Major fieldwork for this soil survey was completed in 2002. Soil names and descriptions were approved in 2003. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2002. The most current official data are available on the Internet.

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

Nondiscrimination Statement

Cover Photo Caption

An Area of Arcadian-Michigamme-Rock outcrop complex, 35 to 70 percent slopes, extremely bouldery, overlooking Lake Superior and the Village of Copper Harbor on the left and Lake Fanny Hooe on the right.

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

Contents

Issued 2006

Foreword

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

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

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

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

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

Ronald Williams
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Keweenaw County Area, Michigan

By Stephen W. Tardy, Natural Resources Conservation Service

Fieldwork by Ken Wikgren and Stephen Tardy, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the Michigan Department of Agriculture, Michigan Agricultural Experiment Station, Michigan State University Extension, and Michigan Technological University

KEWEENAW COUNTY is in the northwestern tip of Michigan's Upper Peninsula (fig. 1). It is bordered on the south by Houghton County. The Isle Royale archipelago in northwestern Lake Superior is not included in this survey. The survey area has an area of 365 square miles, or about 237,453 acres. Eagle River is the county seat of Keweenaw County. The population concentration is in the southern part of Allouez Township. In 2000, the population of Keweenaw County was 2,301. Most income is derived from employment in education, government services, tourism, and retail trade. Timber management and recreation are large economic enterprises in the county.

Soil scientists have determined that there are about 46 kinds of soil in the survey area. The soils range widely in natural drainage, slope, depth, and other characteristics.

The undulating to steep soils in the survey area are dominantly well drained to moderately well drained and are shallow to deep over bedrock. The level and nearly level soils are dominantly very deep and somewhat poorly drained to very poorly drained. Textures range from sand to loam. Erosion generally is a severe hazard in unprotected areas, and measures are needed to control erosion and minimize sedimentation in lakes and streams. In most areas the soil resource is used for forest products. The well drained soils, which make up about one-third of the county, are used for recreation and building site development.

General Nature of the Survey Area

This section provides general information about the survey area. It describes history and development, climate, lakes and streams, and physiography and geology.

History and Development

Keweenaw County has a history dating back before the arrival of European settlers. There is evidence of past Native American activity in the area, including villages, burial grounds, camps, mounds, and mining pits. The Native Americans in Keweenaw County have been predominantly the Chippewa and Ojibway peoples. Most of their early settlements and structures were located near the Gratiot, Montreal, and Tobacco

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

Rivers and Lake Superior. They established the first routes in the county in the form of trails, paths, and portages, which connected their activities. These activities included the mining of copper in shallow excavations in surface deposits for local use and trade abroad. Many of these same routes serve as roads and highways in Keweenaw County today. The area was referred to by the Native people as “Kee-wee-naw,” meaning the crossing or portage. The Keweenaw Peninsula was used as a shorter route from the presentday Keweenaw Bay to western Lake Superior. The 1836 Treaty of Washington and the 1842 Treaty of La Pointe ceded some 30,000 square miles of land rights to the United States Government. This treaty included all land in Keweenaw County, which was then part of the Wisconsin Territory.

The first attempts by Europeans to visit the area were made by the French around 1614. In 1730, following reports of copper ore deposits in the area, French businessmen from the East Coast and southern Michigan tried but failed to make a profit in copper extraction. Michigan became a State in 1837, thereby gaining control of the Upper Peninsula. After Douglas Houghton surveyed the area in 1840 and confirmed the presence of copper, there was an influx of settlers. In 1843, a land office was established in Copper Harbor. With the issuing of the first mineral leases that same year, the modern mining era began.

The earliest successful commercial mining took place in 1844 at Fort Wilkins and in 1845 at the Cliff Mine south of Eagle River. With the growth of the mining industry came the need for transportation of mineral ore, timber, and supplies for workers and their families. Eagle River, Copper Harbor, and Eagle Harbor served as the first shipping ports for minerals and supplies for nearby mines.

The current boundaries of Keweenaw County were established on March 11, 1861. In the years immediately following the Civil War, the lakes, rivers, and streams of Keweenaw County served as highways for the transportation of copper and lumber out of the county to sawmills on Portage Lake in Houghton County. By 1873, narrow-gauge railroads served the mining and lumbering industry and related settlements south of Keweenaw County.

The bulk of the mining took place from 1870 to 1930. Mining served as the main economic enterprise until the 1930s, when mines south of Keweenaw County supplanted the local mining industry. Timber management and harvesting, along with the more recent tourist and recreational industry, continue to be major enterprises in the county.

The first census of population, in 1870, showed 4,205 residents in Keweenaw County. From 1845 to 1910, the population grew at a steady pace until it peaked at 7,156 residents in 1910. After 1910, mines started to close and the population growth reversed. The population decreased by an average of 70 individuals per year until 1990, when a low of 1,701 residents was recorded. In more recent years, tourism, recreation, and retirement settlement have reversed this trend.

Forest fires in the 1900s prompted the private land companies and the Public Domain Commission to institute fire patrols and other conservation measures. From 1933 to 1941, conservation measures were applied in conjunction with the Civilian Conservation Camps. This program contributed much of the local park system, reforestation, recreation, and lodging facilities available to the public.

Climate

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

In winter, the average temperature is 17.3 degrees F and the average daily minimum temperature is 11.2 degrees. The lowest temperature on record, which occurred at Houghton on January 21, 1984, was -26 degrees. In summer, the average temperature is 63.4 degrees and the average daily maximum temperature is 73.1 degrees. The highest temperature, which occurred at Houghton on July 7, 1988, was 102 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 average annual total precipitation is 33.68 inches. Of this total, 14.28 inches, or about 42 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 3.23 inches on August 30, 1995. Thunderstorms occur on about 29 days each year, and most occur between June and September.

The average seasonal snowfall is 218.5 inches. The greatest snow depth at any one time was 57 inches recorded on January 27, 1957. On average, 148 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 26.5 inches recorded on January 18, 1996.

The average relative humidity in midafternoon is about 55 percent in May and nearly 75 percent in December. Humidity is higher at night, and the average at dawn is about 80 percent in most months, except from June to September, when it is nearly 90 percent. The sun shines 60 percent of the time possible in summer and 34 percent in winter. The prevailing wind is from the northwest for much of the year, but it is from the south during much of the summer. Average windspeed is highest, around 12 miles per hour, during March and April.

Lakes and Streams

There are three watersheds in the survey area. These are the Gratiot, Montreal, and Tobacco Rivers, which drain into Lake Superior. The Gratiot watershed is in the southwest corner of Keweenaw County, north of Ahmeek and Mohawk. The Montreal watershed is in the east-central part of the county from the settlement of Delaware to Bete Grise Bay. The Tobacco watershed encompasses the area south and east of Mohawk in Sherman Township and ends by the Village of Gay in the southwest corner of Keweenaw County. Other waterways are the Trap Rock River, the Betsy River, the Silver River, Squatters Creek, Jacobs Creek, and Black Creek.

There are about 10,158 acres of water in Keweenaw County. The three largest lakes are Gratiot Lake, Lake Medora, and Lac La Belle. Gratiot Lake and Lake Medora are landlocked, and Lac La Belle, to the east, is connected to Lake Superior and Keweenaw Bay by a short canal (fig. 2).

Physiography and Geology

The topography of the survey area is dramatic, characterized by steep bedrock cliffs, ridges, and dissected moraines occurring in stark contrast to Lake Superior and various inland lakes, swamps, and marshes. Elevation ranges from 1,540 feet above sea level to 597 feet above sea level at the Lake Superior shore. The physiography of the region is the result of continental glaciation (strongly influenced by the bedrock) and the subsequent deposition of soil parent materials by ice, water, wind, and gravity.

Figure 2.—Typical building site development along Lac La Belle.

Bedrock geology consists of five major stratigraphic units: the Portage Lake Lava Series, Copper Harbor conglomerate, Nonesuch shale, Freda sandstone, and Jacobsville sandstone (fig. 3).

The Portage Lake Lava Series is of Middle Keweenawan age. It consists primarily of basalt and andesite lava flows interbedded with conglomerates. Copper has filled cavities in the series, forming the largest deposit of native copper in the world. The Copper Harbor conglomerate overlies the Portage Lake Lava Series. The Nonesuch shale and Freda sandstone are of Late Keweenawan age and overlie the Copper Harbor conglomerate.

The Jacobsville sandstone is generally considered to be Early and Middle Cambrian in age. It consists of feldspathic and quartzose sandstone with layers of shale and conglomerate. Along the Lake Superior shore at Point Isabelle, cliffs of Jacobsville sandstone exhibit beautiful red and white streaks resulting from oxidation, reduction, and leaching of iron.

The Keweenawan rocks represent sequences of lava flows, erosion, and sedimentation. They were folded to form the Lake Superior Syncline. The crust sagged as material accumulated, tilting the rock layers, which now dip downward from the Keweenaw Peninsula to the northwest under Lake Superior and reemerge on Isle Royale to form a mirror image of the tilted bedrock. Faults developed as the outer layers were thrust up. The Keweenaw Fault is a major reverse fault that separates the Portage Lake Lava Series from the more or less flat-lying Jacobsville sandstone. The highland on the upthrust side of the Keweenaw Fault comprises the Copper Range.

The rugged hills of the Copper Range, including Brockway Mountain, Mount Bohemia, and Mount Lookout, are characterized by bedrock escarpments on the southeast faces, where the edges have been beveled by erosion, and gentler slopes to the northwest as the rocks dip into the Lake Superior Syncline. Differential rates of erosion have allowed stream valleys and depressions to be cut into the exposed edges of the softer layers while the more resistant layers remained to form long, parallel ridges that extend the length of the Keweenaw Peninsula.

During the Pleistocene Ice Age, Keweenaw County was repeatedly covered by glacial ice. The glacial landforms and deposits of the region are the result of the last major glacial stage, the Greatlakean, and almost all traces of earlier glaciation have been obliterated. The dominant features are rocky ridges, dissected ground moraines, and valleys with various thicknesses of glacial deposits from the last decay and retreat of continental glaciers about 10,000 years ago (fig. 4).

The ground moraine on the Keweenaw Lowland southeast of the Copper Range is characterized by reddish sandy loam till derived from the Jacobsville sandstone. Upland portions of the moraine are typically dissected by parallel and dendritic ravines. The lower portions of the moraine are seepy and commonly poorly drained. The till is generally less than 50 feet thick and gradually thins eastward to sandstone cliffs along Keweenaw Bay. A thin layer of till covers the preglacial bedrock valley slopes of the Traprock River Valley, which developed along the Keweenaw Fault.

The moraine on the Keweenaw Upland of the Copper Range is bedrock controlled. The till deposits are very thin or absent on the bedrock ridges. They are thicker in the valleys between ridges. This till tends to be more cobbly and gravelly than that over the Jacobsville sandstone. Stones, boulders, and rock outcrops are common. The deeper deposits are dissected by dendritic and parallel ravines.

The area including the northernmost part of the Keweenaw Peninsula, especially the northeastern side, has a very thin soil mantle and extensive areas of exposed bedrock. There is a parallel ridge and swale topography resulting from differential glacial abrasion of the alternating softer and harder rock layers that have been tilted on end. The stream courses are generally narrow and have a trellis drainage pattern. Postglacial lake activity has left a thin till mixed with conglomerate residuum and superimposed with gravelly and cobbly beaches, strand lines, and terraces.

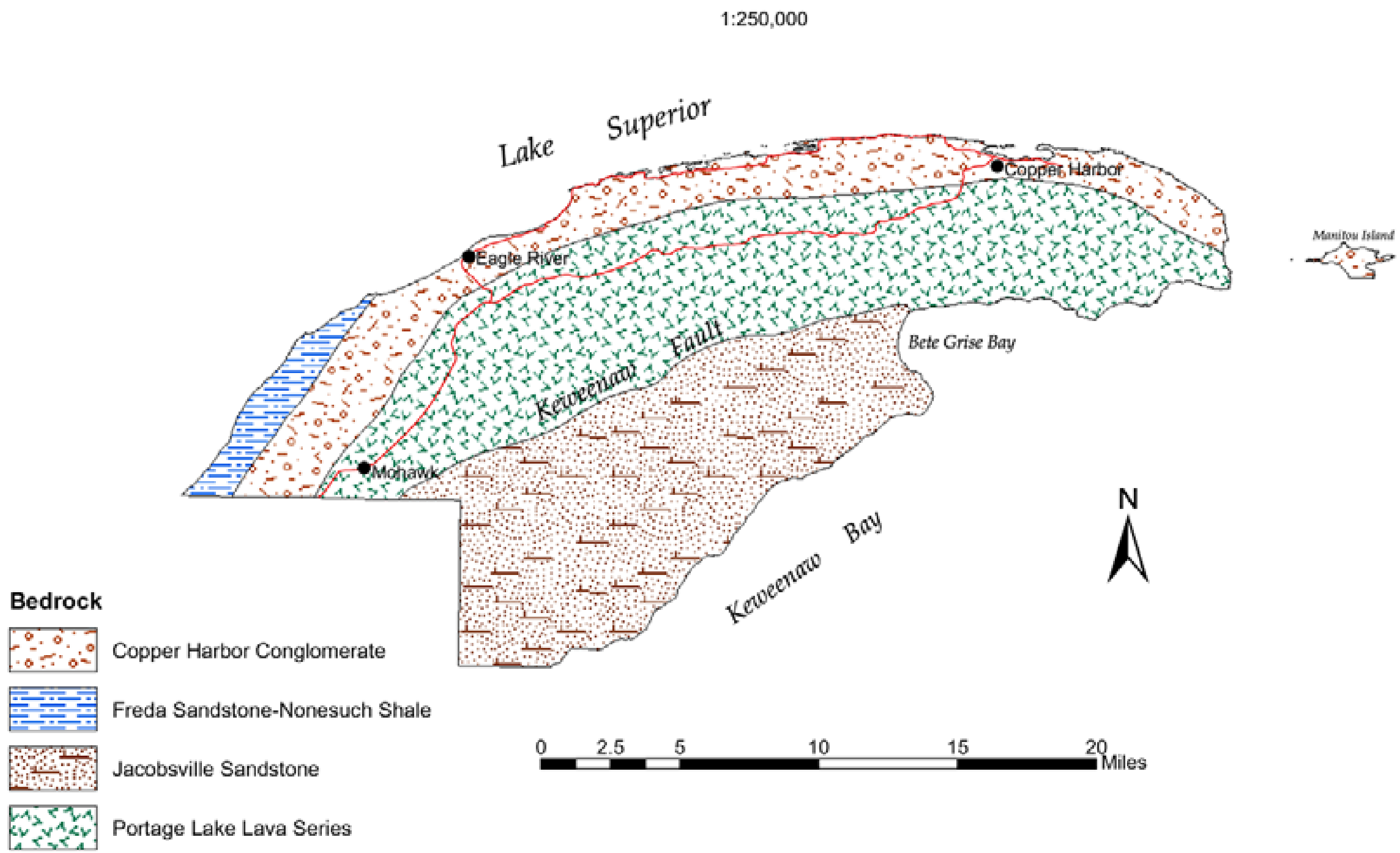


Figure 3.—Generalized bedrock geology of the Keweenaw County area (modified after Martin, 1936, and Kelley, 1968).

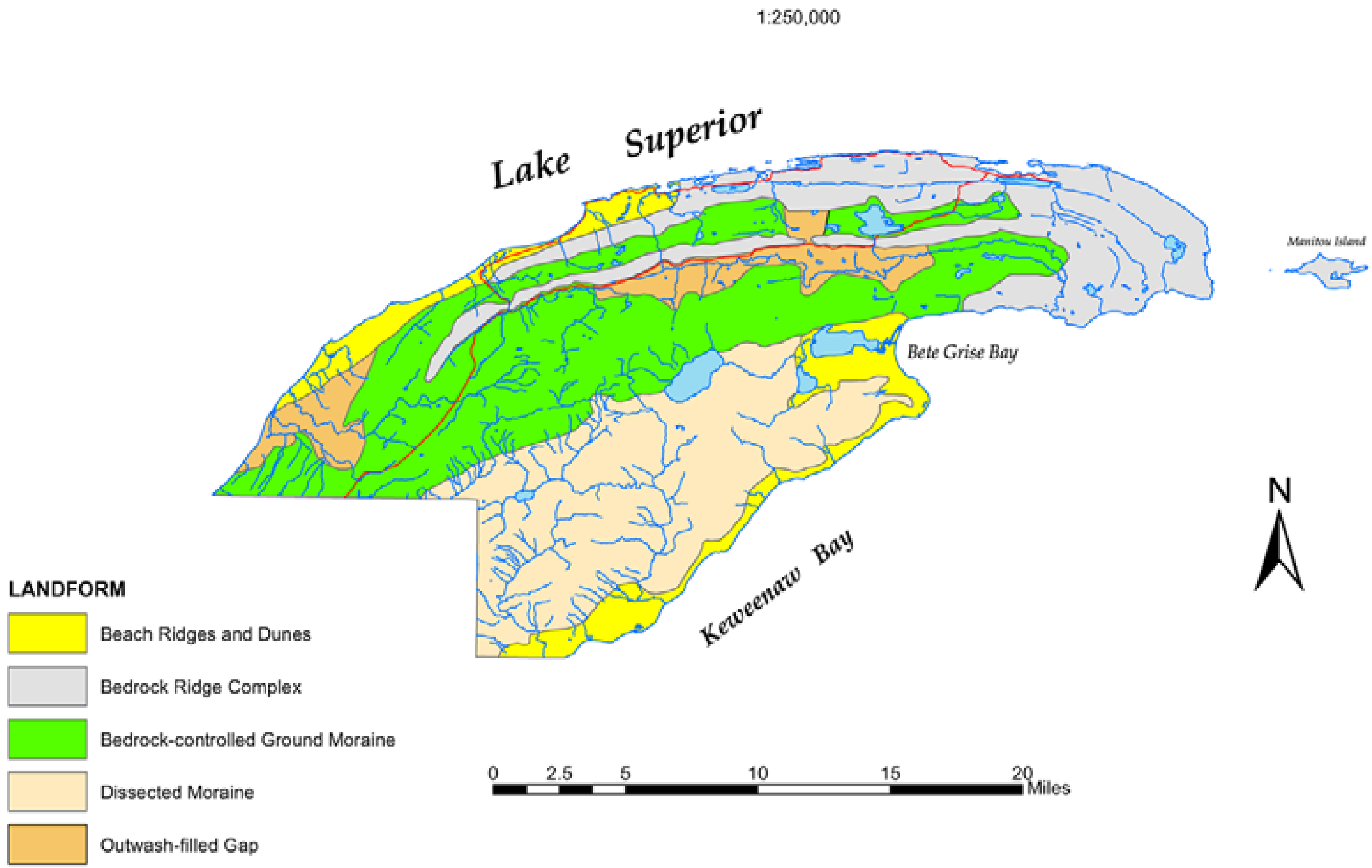


Figure 4.—Dominant glacial landforms in the survey area.

With the ablation of the continental glacier came a variety of glaciofluvial and glaciolacustrine deposits. A good example of an esker can be seen at Clear Lake near Mandan. The flow of meltwater was controlled by existing topographic features, such as gaps in the Copper Range or where meltwater streams formed kame terraces between the ice and steep side slopes. Outwash-filled gaps occur near Ahmeek, Mandan, and Eagle River. Sand and gravel deposits as much as 200 feet thick occur in a buried channel northwest of Ahmeek. Outwash terraces occur along the major streams, including the Traprock, Gratiot, Tobacco, and Montreal Rivers.

After the removal of the ice, the crust of the earth began to rebound. As the land rose, the water levels of the Great Lakes fluctuated as outlets changed. Once the outlets of the Great Lakes stabilized, around 6,000 years ago, the level of ancestral Lake Superior rose to the Nipissing level of 605 feet. Wave-cut cliffs and beaches of the former Nipissing shore are now at 640 feet as a result of the rebound. Examples of Nipissing shore features can be seen all along Lake Superior and include sandstone benches at Point Isabelle, conglomerate ridges at Copper Harbor, sand dunes at Eagle River, and gravel bars at Lac La Belle.

After the ice age ended, numerous lakes and streams remained as remnants of glacial erosion, ablation, and drainage. Scenic harbors, such as Copper Harbor, Eagle Harbor, and Rock Harbor, formed where waters of Lake Superior extend through narrow inlets across the upturned edges of more resistant rock strata and then expand into areas of less resistant rock that have been more deeply eroded. Several landlocked lakes, including Lake Fanny Hooe and Lake Bailey, formed in a similar manner by glacial abrasion of softer bedrock. Lac La Belle and Schlatter Lake are former embayments of Lake Nipissing that were uplifted by rebound and cut off from Lake Superior. The streams of Keweenaw County that once drained glacial meltwater still carry impressive volumes of spring runoff. In some areas the streams cascade down steep gradients to Lake Superior. The lower Montreal River and Eagle River have rapids and waterfalls. Other areas along the Montreal River and Traprock River feature marshes, flood plains, and terraces.

In postglacial times, erosion and deposition continued to modify the landscape. Rock surfaces were exposed by erosion. Areas of scree, talus, and colluvium accumulated on the faces and at the bases of cliffs. Shorelines were modified by waves and currents. Eroded silts and sands were deposited, dried, blown by the wind, and redeposited. Alluvial soils were deposited on flood plains, and organic deposits accumulated in swamps. Small, shallow lakes filled with vegetation and became bogs. In time, as vegetation began to stabilize the soil, the various ecosystems of today began to form, reflecting the physiography of Keweenaw County (Wikgren, 1991).

How This Survey Was Made

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

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

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

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

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

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

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

General Soil Map Units

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

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

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

1. Arcadian-Michigamme-Rock Outcrop Association

Rock outcrop and strongly sloping to very steep, shallow and moderately deep, well drained, loamy soils on rocky ridges and bedrock-controlled moraines

Setting

Landform: Rocky ridges and bedrock-controlled moraines (fig. 5)
Slope range: 4 to 90 percent

Composition

Extent of the association: 12 percent of the survey area
Extent of the soils in the association:
Arcadian and similar soils—35 percent
Michigamme and similar soils—15 percent
Rock outcrop—15 percent
Soils of minor extent—35 percent

Soil Properties and Qualities

Arcadian
Depth class: Shallow to basalt or conglomerate bedrock
Drainage class: Well drained
Position on the landform: Hills, escarpments, side slopes, and ridgetops
Parent material: Gravelly or cobbly loamy material overlying bedrock
Texture of the surface layer: Very gravelly fine sandy loam
Slope: Gently sloping to very steep

Michigamme
Depth class: Moderately deep to basalt or conglomerate bedrock
Drainage class: Well drained
Position on the landform: Hills, escarpments, side slopes, and ridgetops
Parent material: Silty or loamy mantle over loamy till underlain by bedrock

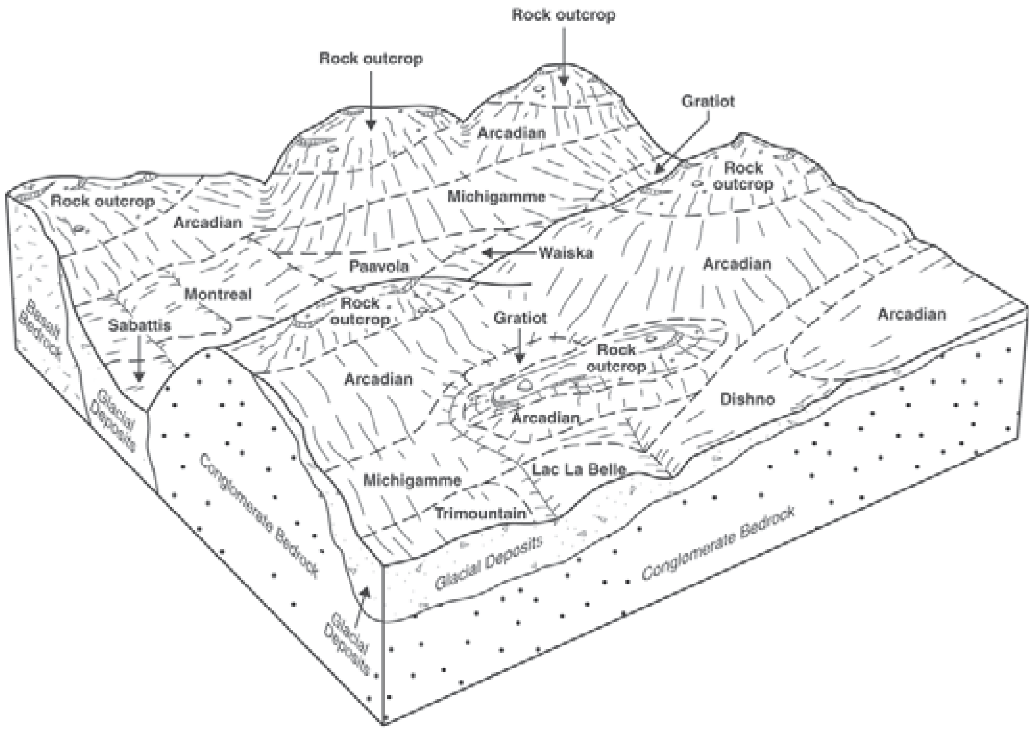


Figure 5.—Typical pattern of soils and parent material in the Arcadian-Michigamme-Rock outcrop association.

Texture of the surface layer: Cobbly very fine sandy loam
Slope: Strongly sloping to very steep

Soils of Minor Extent

- Trimountain and Lac La Belle soils on dissected side slopes
- Montreal, Dishno, Paavola, and Waiska soils in the slightly lower landscape positions
- Gratiot and Sabattis soils in depressions and drainageways

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, idle land, building site development

Woodland
Major management concerns: Arcadian—erosion, surface boulders, rock fragments, seedling mortality, windthrow hazard, slope, rock outcrops; Michigamme—erosion, surface boulders, rock fragments, clayey textures, seedling mortality, soil rutting, slope, rock outcrops

Building site development
Major management concerns: Arcadian—surface stones, surface boulders, depth to bedrock, slope, rock outcrops; Michigamme—surface stones, surface boulders, cutbanks cave, depth to bedrock, slope, rock outcrops

Septic tank absorption fields
Major management concerns: Arcadian—surface stones, surface boulders, slope, restricted permeability, depth to bedrock, rock outcrops; Michigamme—surface stones, surface boulders, slope, restricted permeability, depth to bedrock, rock outcrops

2. Arcadian-Nipissing-Rock Outcrop Association

Rock outcrop and nearly level to very steep, shallow and moderately deep, well drained, loamy-skeletal soils on bedrock benches and abandoned shorelines

Setting

Landform: Bedrock benches and abandoned shorelines on moraines (fig. 6)
Slope range: 0 to 70 percent

Composition

Extent of the association: 7 percent of the survey area
Extent of the soils in the association:
Arcadian and similar soils—27 percent
Nipissing and similar soils—17 percent
Rock outcrop—12 percent
Soils of minor extent—44 percent

Soil Properties and Qualities

Arcadian
Depth class: Shallow to conglomerate or basalt bedrock
Drainage class: Well drained
Position on the landform: Hills, escarpments, side slopes, and ridgetops
Parent material: Gravelly or cobbly loamy material overlying bedrock
Texture of the surface layer: Very gravelly fine sandy loam
Slope: Gently sloping to very steep

Nipissing
Depth class: Moderately deep to conglomerate or basalt bedrock
Drainage class: Well drained

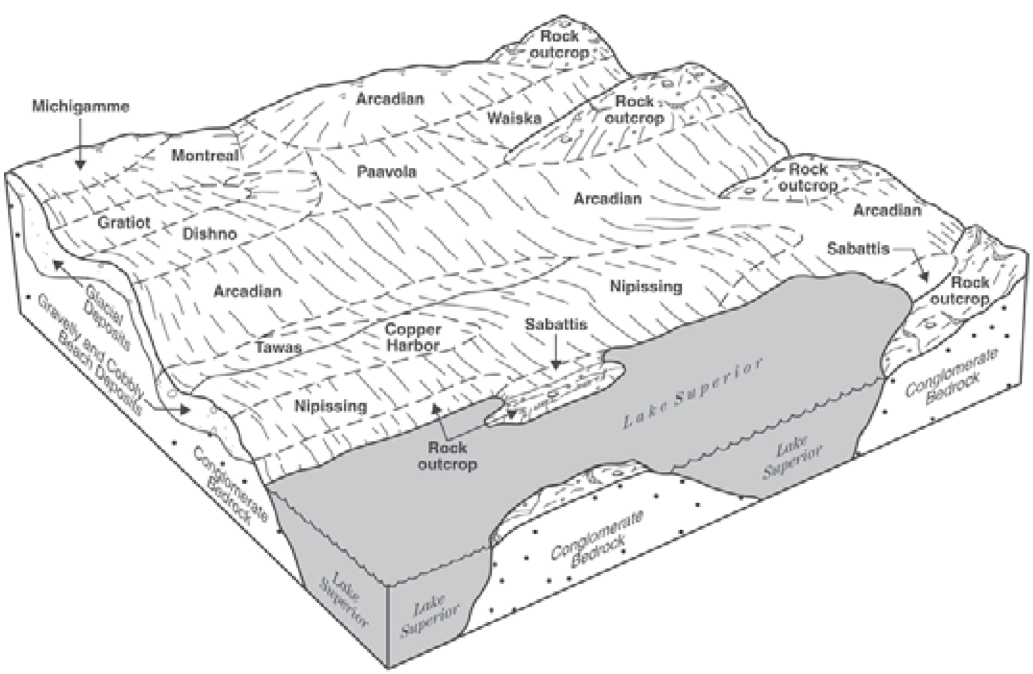


Figure 6.—Typical pattern of soils and parent material in the Arcadian-Nipissing-Rock outcrop association.

Position on the landform: Ridges, knolls, and side slopes
Parent material: Gravelly or cobbly loamy and sandy material overlying bedrock
Texture of the surface layer: Very cobbly silt loam
Slope: Nearly level to steep

Soils of Minor Extent

- Waiska soils in landscape positions similar to those of the Nipissing soils
- Michigamme soils in landscape positions similar to those of the Arcadian soils
- Copper Harbor, Paavola, Dishno, and Montreal soils in the slightly lower landscape positions
- Bete Grise, Gratiot, Sabattis, and Tawas soils in depressions and drainageways

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, idle land, building site development

Woodland
Major management concerns: Arcadian—erosion, surface stones, rock fragments, seedling mortality, windthrow hazard, slope, dissected slopes, rock outcrops; Nipissing—erosion, surface stones, rock fragments, seedling mortality, slope, dissected slopes, rock outcrops

Building site development
Major management concerns: Arcadian—surface stones, depth to bedrock, slope, rock outcrops; Nipissing—surface stones, large stones, depth to bedrock, slope, rock outcrops

Septic tank absorption fields
Major management concerns: Arcadian—surface stones, slope, restricted permeability, depth to bedrock, rock outcrops; Nipissing—surface stones, large stones, slope, poor filtering capacity, restricted permeability, depth to bedrock, rock outcrops

3. Montreal-Paavola-Gratiot Association

Nearly level to moderately steep, very deep, moderately well drained and somewhat poorly drained, loamy and sandy soils on till plains and dissected moraines

Setting

Landform: Till plains and dissected moraines (fig. 7)
Slope range: 0 to 30 percent

Composition

Extent of the association: 5 percent of the survey area
Extent of the soils in the association:
Montreal and similar soils—40 percent
Paavola and similar soils—20 percent
Gratiot and similar soils—15 percent
Soils of minor extent—25 percent

Soil Properties and Qualities

Montreal
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, ridges, and side slopes

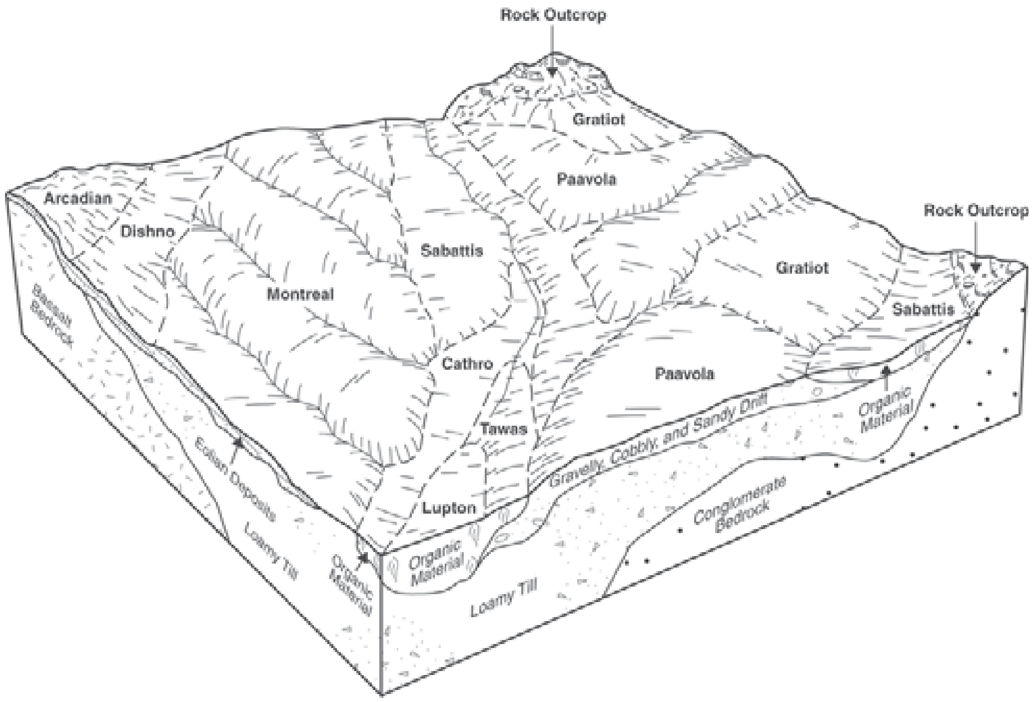


Figure 7.—Typical pattern of soils and parent material in the Montreal-Paavola-Gratiot association.

Parent material: Loamy eolian mantle overlying loamy or sandy till
Texture of the surface layer: Cobbly fine sandy loam
Slope: Nearly level to moderately steep

Paavola
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, ridges, and side slopes
Parent material: Gravelly or cobbly sandy deposits overlying loamy or sandy till
Texture of the surface layer: Cobbly loamy sand
Slope: Nearly level to moderately steep

Gratiot
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Footslopes, depressions, and drainageways
Parent material: Cobbly or gravelly deposits overlying loamy or sandy till
Texture of the surface layer: Very cobbly fine sandy loam
Slope: Nearly level to gently sloping

Soils of Minor Extent

- Dishno soils in landscape positions similar to those of the Montreal and Paavola soils
- Rock outcrop and Arcadian soils on rocky knolls and ridges
- Sabattis, Cathro, Tawas, and Lupton soils in the lowest depressions and drainageways

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland

Major management concerns: Montreal—surface boulders, rock fragments, seedling mortality, soil rutting, windthrow hazard, seasonal wetness; Paavola—surface boulders, rock fragments, seedling mortality, soil rutting, windthrow hazard, depth to bedrock, seasonal wetness; Gratiot—surface boulders, rock fragments, clayey textures, seedling mortality, windthrow hazard

Building site development

Major management concerns: Montreal—surface stones, surface boulders, cutbanks caving, slope, seasonal wetness; Paavola—surface stones, surface boulders, cutbanks caving, slope, seasonal wetness, depth to bedrock; Gratiot—surface stones, surface boulders, large stones, seasonal wetness

Septic tank absorption fields

Major management concerns: Montreal—surface stones, surface boulders, slope, restricted permeability, depth to a fragipan, severe wetness; Paavola—surface stones, surface boulders, slope, poor filtering capacity, restricted permeability, depth to bedrock, severe wetness, depth to a fragipan; Gratiot—surface stones, surface boulders, large stones, restricted permeability, depth to a fragipan, seasonal wetness

4. Skanee-Munising-Gay Association

Nearly level to moderately steep, very deep, moderately well drained to very poorly drained, loamy soils on till plains and dissected moraines

Setting

Landform: Till plains and dissected moraines (fig. 8)
Slope range: 0 to 30 percent

Composition

Extent of the association: 22 percent of the survey area
Extent of the soils in the association:
Skanee and similar soils—38 percent
Munising and similar soils—34 percent
Gay and similar soils—18 percent
Soils of minor extent—10 percent

Soil Properties and Qualities

Skanee

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Footslopes, depressions, and drainageways
Parent material: Loamy till
Texture of the surface layer: Loamy sand
Slope: Nearly level to gently sloping

Munising

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, ridges, and side slopes
Parent material: Loamy till
Texture of the surface layer: Fine sandy loam
Slope: Nearly level to moderately steep

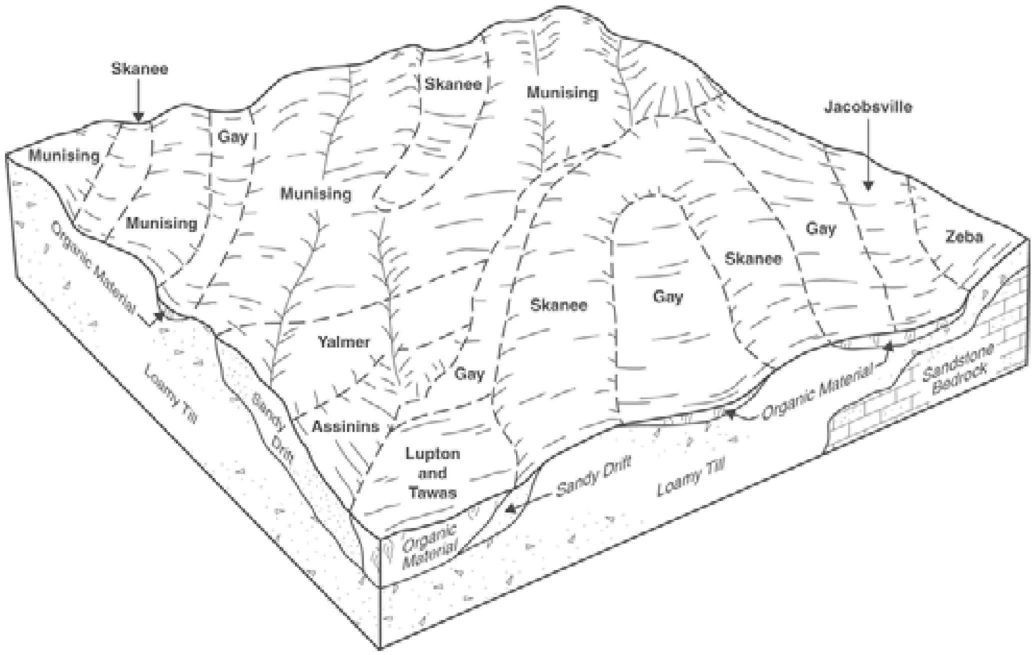


Figure 8.—Typical pattern of soils and parent material in the Skanee-Munising-Gay association.

Gay
Depth class: Very deep
Drainage class: Poorly drained
Position on the landform: Depressions and drainageways
Parent material: Loamy till
Texture of the surface layer: Muck
Slope: Nearly level

Soils of Minor Extent

- Lupton and Tawas soils in the lowest depressions and drainageways
- Yalmer and Assinins soils, which have sandy deposits over the till
- Zeba and Jacobsville soils, which are underlain by sandstone bedrock at a depth of 20 to 60 inches

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Munising—seedling mortality, soil rutting, windthrow hazard, seasonal wetness, erosion, slope; Skanee—seedling mortality, windthrow hazard; Gay—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Munising—surface stones, cutbanks caving, slope, seasonal wetness; Skanee—surface stones, seasonal wetness; Gay—ponding, severe wetness

Septic tank absorption fields
Major management concerns: Munising—surface stones, slope, restricted

permeability, depth to a fragipan, severe wetness, slope; Skanee—surface stones, restricted permeability, depth to a fragipan, seasonal wetness; Gay—ponding

5. Dawson-Au Gres-Croswell Association

Nearly level to strongly sloping, very deep, very poorly drained to moderately well drained, sandy soils on beach ridges and swales

Setting

Landform: Beach ridges and swales on outwash plains and lake plains (fig. 9)
Slope range: 0 to 12 percent

Composition

Extent of the association: 8 percent of the survey area
Extent of the soils in the association:
Dawson and similar soils—35 percent
Au Gres and similar soils—20 percent
Croswell and similar soils—15 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Dawson
Depth class: Very deep
Drainage class: Very poorly drained
Position on the landform: Depressions and swales
Parent material: Organic material overlying sandy deposits
Texture of the surface layer: Peat
Slope: Nearly level

Figure 9.—Typical pattern of soils and parent material in the Dawson-Au Gres-Croswell association.

Au Gres
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Low ridges and swales
Parent material: Sandy deposits
Texture of the surface layer: Sand
Slope: Nearly level to gently sloping

Croswell
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, ridges, side slopes, and footslopes
Parent material: Sandy deposits
Texture of the surface layer: Sand
Slope: Nearly level to strongly sloping

Soils of Minor Extent

- Deer Park and Rubicon soils on the highest beach ridges and dunes
- Loxley, Kinross, and Deford soils in landscape positions similar to those of the Dawson soils
- Burt, Betsy Bay, and Skandia soils, which are underlain by sandstone bedrock at a depth of 10 to 60 inches

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Dawson—seedling mortality, windthrow hazard, excess humus, low strength; Au Gres—seedling mortality, windthrow hazard, seasonal wetness; Croswell—sandy textures, seedling mortality

Building site development
Major management concerns: Dawson—cutbanks cave, ponding, severe wetness, low strength, subsidence; Au Gres—cutbanks caving, seasonal wetness; Croswell—cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Dawson—poor filtering capacity, ponding, low strength, subsidence, severe wetness; Au Gres—poor filtering capacity, severe wetness; Croswell—slope, poor filtering capacity, seasonal wetness

6. Lupton-Tawas-Deford Association

Nearly level, very deep, very poorly drained, mucky soils in swamps on lake plains, outwash plains, and moraines

Setting

Landform: Swamps on lake plains, outwash plains, and moraines (fig. 10)
Slope range: 0 to 3 percent

Composition

Extent of the association: 3 percent of the survey area
Extent of the soils in the association:
Lupton and similar soils—40 percent
Tawas and similar soils—35 percent

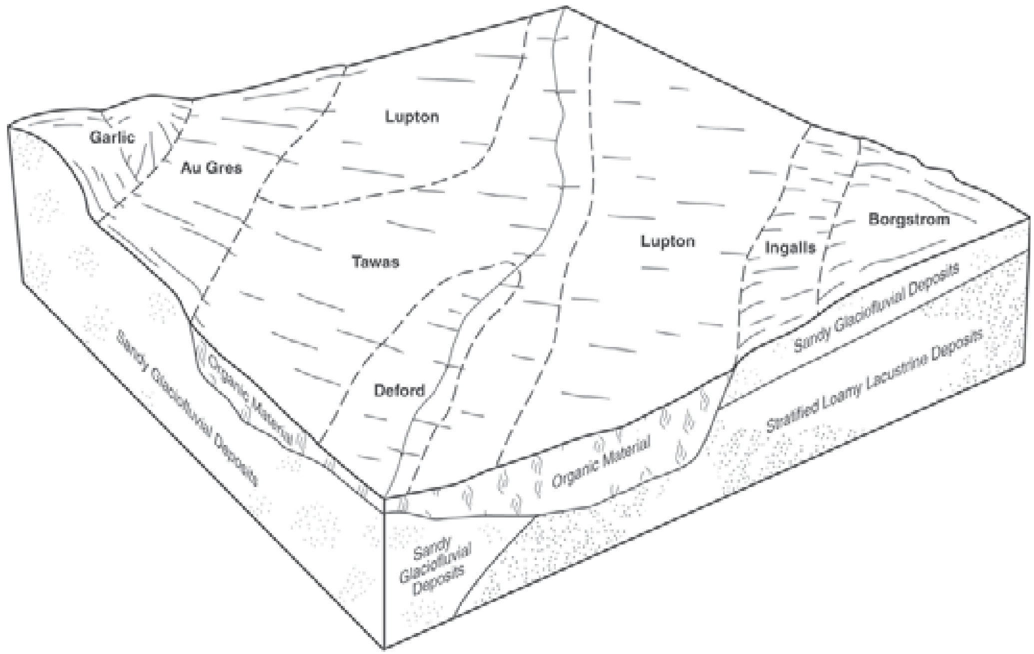


Figure 10.—Typical pattern of soils and parent material in the Lupton-Tawas-Deford association.

Deford and similar soils—15 percent
Soils of minor extent—10 percent

Soil Properties and Qualities

Lupton
Depth class: Very deep
Drainage class: Very poorly drained
Position on the landform: Broad, flat depressions and drainageways
Parent material: Thick organic deposits
Texture of the surface layer: Muck
Slope: Nearly level

Tawas
Depth class: Very deep
Drainage class: Very poorly drained
Position on the landform: Depressions and drainageways
Parent material: Organic material overlying sandy deposits
Texture of the surface layer: Muck
Slope: Nearly level

Deford
Depth class: Very deep
Drainage class: Poorly drained
Position on the landform: Depressions and drainageways
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Muck
Slope: Nearly level

Soils of Minor Extent

- Au Gres and Ingalls soils on slight rises and ridges
- Borgstrom and Garlic soils on isolated knolls and ridges and in transitional areas adjoining other map units

Use and Management

Land use: Major use—woodland; other use—wetland wildlife habitat

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

Building site development
Major management concerns: Lupton—ponding, severe wetness, low strength, subsidence; Tawas—cutbanks caving, ponding, severe wetness, low strength; Deford—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Lupton—ponding, low strength, subsidence, severe wetness; Tawas—poor filtering capacity, ponding, low strength, severe wetness; Deford—poor filtering capacity, ponding, severe wetness

7. Montreal-Paavola-Arcadian Association

Gently sloping to very steep, very deep and shallow, moderately well drained and well drained, loamy and sandy soils on dissected, bedrock-controlled moraines

Setting

Landform: Dissected, bedrock-controlled moraines (fig. 11)
Slope range: 1 to 70 percent

Composition

Extent of the association: 30 percent of the survey area
Extent of the soils in the association:
Montreal and similar soils—43 percent
Paavola and similar soils—16 percent
Arcadian and similar soils—16 percent
Soils of minor extent—25 percent

Soil Properties and Qualities

Montreal
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, ridges, and side slopes
Parent material: Loamy eolian mantle overlying loamy or sandy till
Texture of the surface layer: Cobbly fine sandy loam
Slope: Gently sloping to steep

Paavola
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, ridges, and side slopes
Parent material: Gravelly or cobbly sandy deposits overlying loamy or sandy till

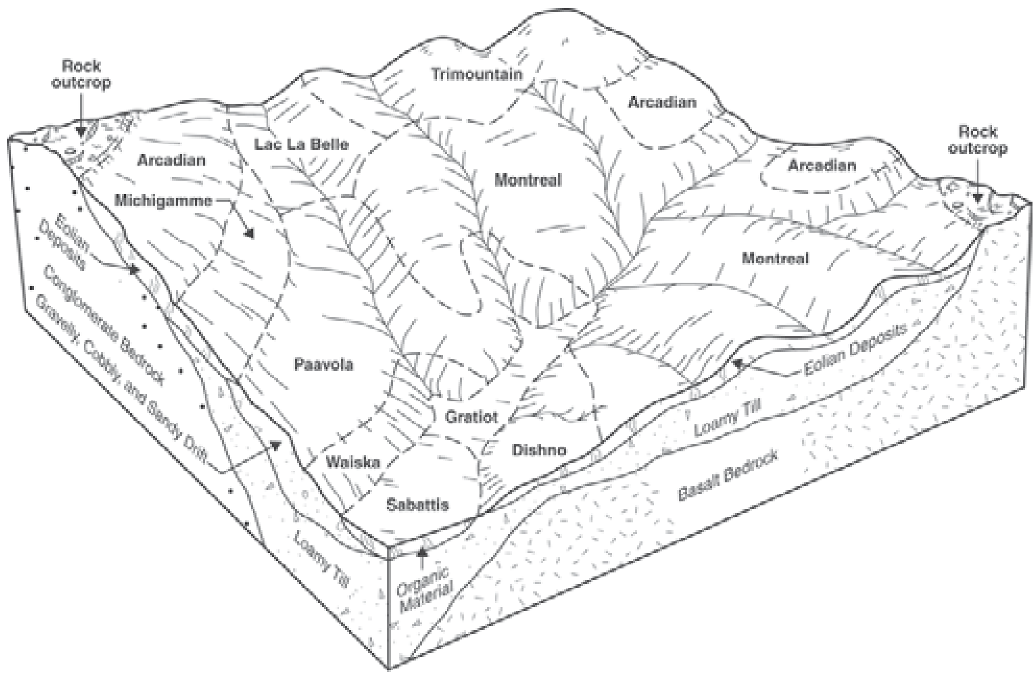


Figure 11.—Typical pattern of soils and parent material in the Montreal-Paavola-Arcadian association.

Texture of the surface layer: Cobbly loamy sand
Slope: Gently sloping to steep

Arcadian
Depth class: Shallow
Drainage class: Well drained
Position on the landform: Hills, escarpments, side slopes, and ridgetops
Parent material: Gravelly or cobbly loamy material overlying bedrock
Texture of the surface layer: Very gravelly fine sandy loam
Slope: Gently sloping to very steep

Soils of Minor Extent

- Dishno and Waiska soils in landscape positions similar to those of the Montreal and Paavola soils
- Trimountain and Lac La Belle soils on the steeper dissected side slopes
- Rock outcrop and Michigamme soils in landscape positions similar to those of the Arcadian soils
- Gratiot and Sabattis soils in depressions and drainageways

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, idle land, building site development

Woodland
Major management concerns: Montreal—erosion, surface boulders, rock fragments, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness, dissected slopes; Paavola—erosion, surface boulders, rock fragments, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness, dissected slopes; Arcadian—erosion, surface boulders, rock fragments, seedling mortality, windthrow hazard, slope, rock outcrops

Building site development

Major management concerns: Montreal—surface stones, surface boulders, cutbanks caving, slope, seasonal wetness; Paavola—surface stones, surface boulders, cutbanks caving, slope, seasonal wetness; Arcadian—surface stones, surface boulders, depth to bedrock, slope

Septic tank absorption fields

Major management concerns: Montreal—surface stones, surface boulders, slope, restricted permeability, depth to a fragipan, severe wetness; Paavola—surface stones, surface boulders, slope, poor filtering capacity, restricted permeability, depth to a fragipan, severe wetness; Arcadian—surface stones, surface boulders, slope, restricted permeability, depth to bedrock

8. Garlic-Waiska-Alcona Association

Gently sloping to very steep, very deep, well drained to excessively drained, sandy and loamy soils on dissected outwash terraces, deltas, eskers, outwash plains, stream terraces, and lake plains

Setting

Landform: Dissected outwash terraces, deltas, lake plains, outwash plains, stream terraces, and eskers (fig. 12)

Slope range: 1 to 60 percent

Composition

Extent of the association: 7 percent of the survey area

Extent of the soils in the association:

Garlic and similar soils—40 percent

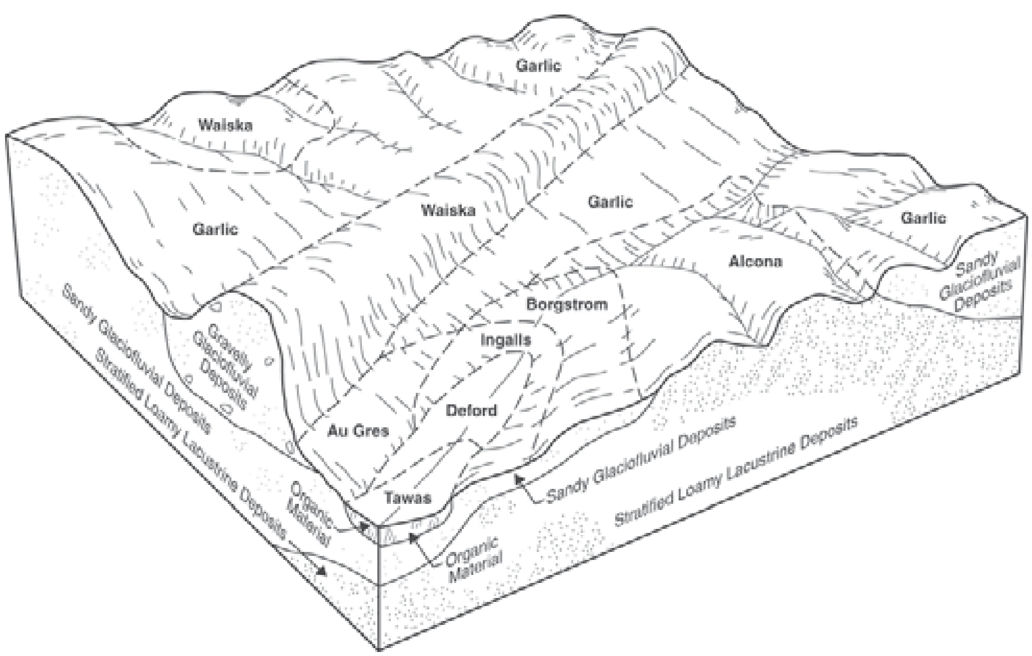


Figure 12.—Typical pattern of soils and parent material in the Garlic-Waiska-Alcona association.

Waiska and similar soils—25 percent
Alcona and similar soils—15 percent
Soils of minor extent—20 percent

Soil Properties and Qualities

Garlic
Depth class: Very deep
Drainage class: Well drained
Position on the landform: Knolls, ridges, escarpments, and side slopes
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Loamy fine sand
Slope: Gently sloping to very steep

Waiska
Depth class: Very deep
Drainage class: Excessively drained
Position on the landform: Knolls, ridges, escarpments, and side slopes
Parent material: Gravelly or cobbly sandy material
Texture of the surface layer: Cobbly loamy sand
Slope: Gently sloping to very steep

Alcona
Depth class: Very deep
Drainage class: Well drained
Position on the landform: Knolls, ridges, and side slopes
Parent material: Sandy and loamy glaciofluvial deposits
Texture of the surface layer: Very fine sandy loam
Slope: Gently sloping to steep

Soils of Minor Extent

- Borgstrom soils in the slightly lower landscape positions
- Ingalls and Au Gres soils in depressions and along drainageways
- Tawas and Deford soils in the lowest depressions and drainageways

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Garlic—erosion, surface boulders, seedling mortality, slope, dissected slopes; Waiska—erosion, surface boulders, rock fragments, seedling mortality, slope, dissected slopes; Alcona—erosion, seedling mortality, soil rutting, slope, dissected slopes

Building site development
Major management concerns: Garlic—cutbanks caving, slope; Waiska—surface stones, surface boulders, cutbanks caving, slope; Alcona—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Garlic—slope, poor filtering capacity; Waiska—surface stones, surface boulders, slope, poor filtering capacity; Alcona—slope

9. Munising-Yalmer-Garlic Association

Gently sloping to very steep, very deep, moderately well drained and well drained, loamy and sandy soils on dissected moraines

Setting

Landform: Dissected moraines (fig. 13)
Slope range: 1 to 60 percent

Composition

Extent of the association: 4 percent of the survey area
Extent of the soils in the association:
Munising and similar soils—40 percent
Yalmer and similar soils—20 percent
Garlic and similar soils—20 percent
Soils of minor extent—20 percent

Soil Properties and Qualities

Munising
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, ridges, and side slopes
Parent material: Loamy till
Texture of the surface layer: Fine sandy loam
Slope: Gently sloping to steep

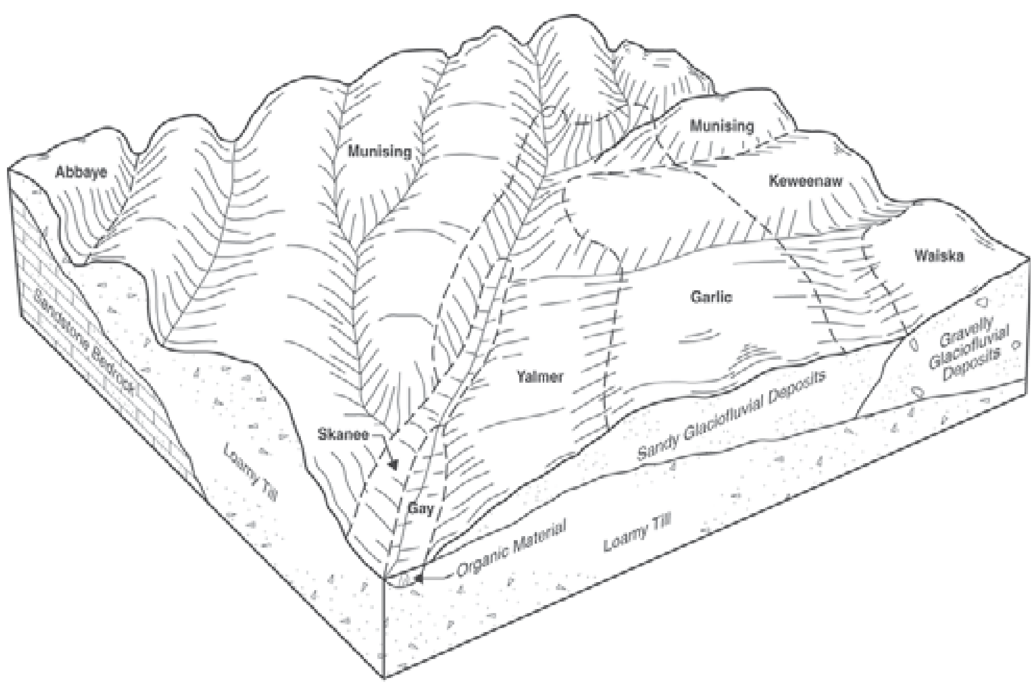


Figure 13.—Typical pattern of soils and parent material in the Munising-Yalmer-Garlic association.

Yalmer
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, ridges, and side slopes
Parent material: Sandy outwash over loamy till
Texture of the surface layer: Loamy sand
Slope: Gently sloping to steep

Garlic
Depth class: Very deep
Drainage class: Well drained
Position on the landform: Knolls, ridges, terraces, escarpments, and side slopes
Parent material: Sandy glaciofluvial deposits
Texture of the surface layer: Loamy fine sand
Slope: Gently sloping to very steep

Soils of Minor Extent

- Abbaye soils in landscape positions similar to those of the Munising and Yalmer soils
- Keweenaw and Waiska soils in landscape positions similar to those of the Garlic soils
- Skanee and Gay soils in depressions and drainageways

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Munising—erosion, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness, dissected slopes; Yalmer—erosion, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness, dissected slopes; Garlic—seedling mortality

Building site development
Major management concerns: Munising—surface stones, cutbanks caving, slope, seasonal wetness; Yalmer—surface stones, cutbanks caving, slope, seasonal wetness; Garlic—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Munising—surface stones, slope, restricted permeability, depth to a fragipan, severe wetness; Yalmer—surface stones, slope, poor filtering capacity, restricted permeability, depth to a fragipan, severe wetness; Garlic—slope, poor filtering capacity

10. Deer Park-Rubicon-Croswell Association

Nearly level to very steep, excessively drained to moderately well drained, sandy soils on beaches and dunes

Setting

Landform: Beaches and dunes (fig. 14)
Slope range: 0 to 70 percent

Composition

Extent of the association: 2 percent of the survey area

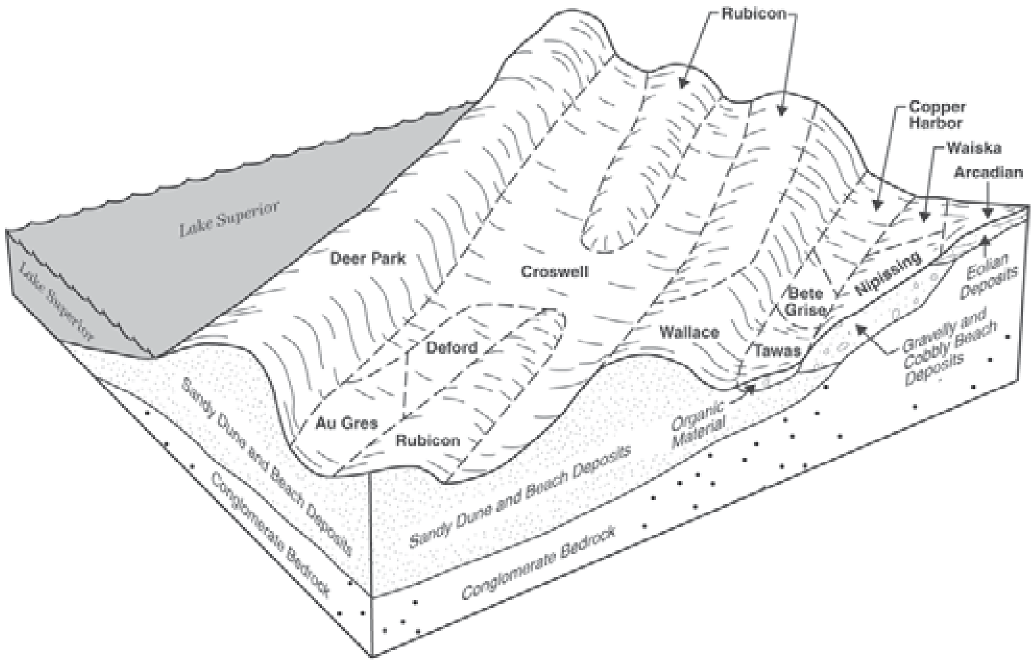


Figure 14.—Typical pattern of soils and parent material in the Deer Park-Rubicon-Croswell association.

Extent of the soils in the association:
Deer Park and similar soils—40 percent
Rubicon and similar soils—20 percent
Croswell and similar soils—20 percent
Soils of minor extent—20 percent

Soil Properties and Qualities

Deer Park
Depth class: Very deep
Drainage class: Excessively drained
Position on the landform: Knolls, ridges, escarpments, and side slopes
Parent material: Sandy eolian deposits and sandy lacustrine deposits
Texture of the surface layer: Fine sand
Slope: Nearly level to very steep

Rubicon
Depth class: Very deep
Drainage class: Excessively drained
Position on the landform: Knolls, ridges, and side slopes
Parent material: Sandy deposits
Texture of the surface layer: Sand
Slope: Nearly level to steep

Croswell
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, ridges, side slopes, and footslopes

Parent material: Sandy deposits
Texture of the surface layer: Sand
Slope: Nearly level to gently sloping

Soils of Minor Extent

- Wallace and Waiska soils in landscape positions similar to those of the Rubicon soils
- Copper Harbor soils in landscape positions similar to those of the Croswell soils
- Au Gres and Bete Grise soils on low ridges and in swales
- Tawas and Deford soils in the lowest depressions and swales
- Nipissing and Arcadian soils on rocky ridges and knolls

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Deer Park—erosion, seedling mortality, slope; Rubicon—sandy textures, seedling mortality; Croswell—sandy textures, seedling mortality

Building site development
Major management concerns: Deer Park—cutbanks caving, slope; Rubicon—cutbanks caving, slope; Croswell—cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Deer Park—slope, poor filtering capacity; Rubicon—slope, poor filtering capacity; Croswell—slope, poor filtering capacity, seasonal wetness

Detailed Soil Map Units

The map units delineated on the detailed 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.

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

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

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Garlic fine sand, 0 to 8 percent slopes, is a phase of the Garlic series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Arcadian-Michigamme-Rock outcrop complex, 8 to 35 percent slopes, extremely bouldery, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas 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 soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Histosols and Aquents, ponded, is an undifferentiated group in this survey area.

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

Table 4 gives the acreage and proportionate extent of each map unit. Other tables 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.

2—Lupton and Tawas soils, 0 to 1 percent slopes

Setting

Landform: Depressions and drainageways on lake plains, moraines, and outwash plains

Map Unit Composition

Major components:
- Lupton and similar soils: 50 to 100 percent
- Tawas and similar soils: 25 to 45 percent

Minor components:
- Deford and similar soils (0 to 8 percent of the map unit) in landscape positions similar to those of the Tawas soil
- Au Gres and similar soils (0 to 3 percent of the map unit) on slight rises and ridges
- Ingalls and similar soils (0 to 1 percent of the map unit) on slight rises and ridges

Typical Profile

Lupton

Oi—0 to 8 inches; black muck
Oa—8 to 80 inches; black and very dark brown muck

Tawas

Oa1—0 to 6 inches; black muck
Oa2—6 to 25 inches; black muck
Cg—25 to 80 inches; dark grayish brown sand

Soil Properties and Qualities

Parent material: Lupton—herbaceous organic material; Tawas—organic material over sandy drift

Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Lupton—about 3.1 inches to a depth of 60 inches; Tawas—about 11.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Lupton—moderately rapid; Tawas—moderately rapid over rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Depth and most likely period of ponding: 0.2 foot (March, April, May, June, October, November)

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

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

Building site development
Major management concerns: Lupton—ponding, severe wetness, low strength, subsidence; Tawas—cutbanks caving, ponding, severe wetness, low strength

Septic tank absorption fields
Major management concerns: Lupton—ponding, low strength, subsidence, severe wetness; Tawas—poor filtering capacity, ponding, low strength, severe wetness

Interpretive Groups

Land capability classification: 6w
Michigan soil management group: Lupton—Mc; Tawas—M/4c
Prime farmland category: Not prime farmland
Hydric soil status: Hydric
Forest habitat type: TTM, TTS

3—Dawson and Loxley soils, 0 to 1 percent slopes

Setting

Landform: Bogs and depressions on lake plains, moraines, and outwash plains

Map Unit Composition

Major components:
Dawson and similar soils: 40 to 65 percent
Loxley and similar soils: 30 to 50 percent

Minor components:
Kinross and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Dawson soil
Au Gres and similar soils (0 to 5 percent of the map unit) on slight rises and ridges
Croswell and similar soils (0 to 3 percent of the map unit) on slight rises and ridges

Typical Profile

Dawson
Oi—0 to 6 inches; dark brown and brown peat
Oa—6 to 38 inches; black and very dark gray muck
C—38 to 80 inches; very dark grayish brown, dark grayish brown, and brown sand

Loxley
Oi—0 to 5 inches; dark yellowish brown peat
Oa1—5 to 26 inches; black and very dark brown and dark brown muck
Oa2—26 to 45 inches; very dark brown and dark brown muck
Oe—45 to 60 inches; brown mucky peat

Soil Properties and Qualities

Parent material: Dawson—herbaceous organic material over sandy glaciolacustrine deposits; Loxley—organic material
Slope: 0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Dawson—about 17.8 inches to a depth of 60 inches; Loxley—about 18.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Loxley—moderately rapid; Dawson—moderately rapid or rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: July, August, September
Depth and most likely period of ponding: 0.5 foot (April, May)

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

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

Building site development
Major management concerns: Dawson—cutbanks caving, ponding, severe wetness, low strength, subsidence; Loxley—severe wetness, low strength, subsidence

Septic tank absorption fields
Major management concerns: Dawson—poor filtering capacity, ponding, low strength, subsidence, severe wetness; Loxley—ponding, low strength, subsidence, severe wetness

Interpretive Groups

Land capability classification: 7w
Michigan soil management group: Dawson—Mc-a; Loxley—7w
Prime farmland category: Not prime farmland
Hydric soil status: Hydric
Forest habitat type: PCS

6—Skandia-Burt complex, 0 to 2 percent slopes

Setting

Landform: Bogs and depressions and drainageways on lake benches

Map Unit Composition

Major components:
- Skandia and similar soils: 50 to 70 percent
- Burt and similar soils: 25 to 40 percent

Minor components:
- Dawson and similar soils (0 to 9 percent of the map unit) in landscape positions similar to those of the Skandia soil
- Betsy Bay and similar soils (0 to 7 percent of the map unit) on slight rises and ridges
- Jacobsville, stony, and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Burt soil

Typical Profile

Skandia

Oa1—0 to 5 inches; dark grayish brown and brown mucky peat
Oa2—5 to 33 inches; dark reddish gray, very dark grayish brown, and very dark brown muck
2Cr—33 to 41 inches; brown very channery sand
2R—41 inches; unweathered sandstone bedrock

Burt

Oa—0 to 4 inches; black muck
A—4 to 6 inches; very dark gray mucky sand
Cg—6 to 12 inches; grayish brown sand
C—12 to 17 inches; brown sand
R—17 inches; brown, unweathered sandstone bedrock

Soil Properties and Qualities

Parent material: Skandia—herbaceous organic material over sandstone; Burt—sandy residuum over sandstone
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: Skandia—30 to 46 inches to bedrock (lithic); Burt—12 to 20 inches to bedrock (lithic)
Drainage class: Skandia—very poorly drained; Burt—poorly drained
Available water capacity: Skandia—about 14.0 inches to a depth of 60 inches; Burt—about 2.4 inches to a depth of 60 inches
Shrink-swell potential: Skandia—low; Burt—moderate
Permeability: Skandia—moderate or moderately rapid; Burt—moderately rapid
Flooding: None
Depth to seasonal high water table: Skandia—at the surface (January, February, March, April, May, June, October, November, December); Burt—at the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: Skandia—January, February, July, August, September, December; Burt—January, February, June, July, August, September, December

Depth and most likely period of ponding: Skandia—0.2 foot (March, April, May, June, October, November); Burt—0.5 foot (March, April, May, October, November)

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Skandia—seedling mortality, windthrow hazard, depth to bedrock, excess humus, low strength; Burt—seedling mortality, windthrow hazard, depth to bedrock, severe wetness

Building site development
Major management concerns: Skandia—ponding, severe wetness, low strength; Burt—ponding, severe wetness

Septic tank absorption fields
Major management concerns: Skandia—restricted permeability, ponding, low strength, depth to bedrock, severe wetness; Burt—restricted permeability, ponding, depth to bedrock

Interpretive Groups

Land capability classification: 7w
Michigan soil management group: Skandia—M/Rc; Burt—Rbc
Prime farmland category: Not prime farmland
Hydric soil status: Hydric
Forest habitat type: PCS, TTS

10—Cathro-Sabattis complex, 0 to 2 percent slopes, stony

Setting

Landform: Drainageways and depressions on lake benches and till plains

Map Unit Composition

Major components:
Cathro, stony, and similar soils: 45 to 75 percent
Sabattis, stony, and similar soils: 25 to 45 percent

Minor components:
Tawas and similar soils (0 to 9 percent of the map unit) in landscape positions similar to those of the Cathro soil
Lupton and similar soils (0 to 8 percent of the map unit) in landscape positions similar to those of the Cathro soil
Gratiot and similar soils (0 to 5 percent of the map unit) on slight rises and ridges

Typical Profile

Cathro
Oa—0 to 34 inches; black, highly decomposed plant material
Cg—34 to 80 inches; black and dark reddish brown very fine sandy loam

Sabattis
Oa—0 to 8 inches; black, highly decomposed plant material
A—8 to 12 inches; black very cobbly very fine sandy loam
Bg—12 to 17 inches; dark grayish brown cobbly very fine sandy loam
C1—17 to 32 inches; brown cobbly very fine sandy loam
2C2—32 to 37 inches; brown cobbly fine sandy loam
2C3—37 to 80 inches; dark grayish brown very cobbly sandy loam

Soil Properties and Qualities

Parent material: Cathro—herbaceous organic material over loamy drift; Sabattis—coarse-loamy till and colluvium
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Cathro—about 10.9 inches to a depth of 60 inches; Sabattis—about 8.5 inches to a depth of 60 inches
Shrink-swell potential: Cathro—moderate; Sabattis—low
Permeability: Cathro—moderately slow to moderately rapid in the upper part and moderate in the lower part; Sabattis—moderate in the upper part and moderately slow or moderate in the lower part
Flooding: None
Depth to seasonal high water table: Cathro—at the surface (January, February, March, April, May, June, October, November, December); Sabattis—at the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: Cathro—January, February, July, August, September, December; Sabattis—January, February, June, July, August, September, December
Depth and most likely period of ponding: Cathro—0.2 foot (March, April, May, June, October, November); Sabattis—0.5 foot (March, April, May, November)

Use and Management

Land use: Major use—woodland; other use—wetland wildlife habitat

Woodland
Major management concerns: Cathro—seedling mortality, windthrow hazard, excess humus, low strength; Sabattis—surface stones, rock fragments, clayey textures, seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Cathro—ponding, severe wetness, low strength

Septic tank absorption fields
Major management concerns: Cathro—ponding, low strength, severe wetness; Sabattis—surface stones, ponding, severe wetness

Interpretive Groups

Land capability classification: Cathro—6w; Sabattis—5w
Michigan soil management group: Cathro—M/3c; Sabattis—3c
Prime farmland category: Not prime farmland
Hydric soil status: Hydric
Forest habitat type: TTM, FI

13—Tawas-Deford complex, 0 to 4 percent slopes

Setting

Landform: Swamps, depressions, and drainageways on outwash plains, moraines, and lake plains

Map Unit Composition

Major components:
Tawas and similar soils: 45 to 90 percent
Deford and similar soils: 20 to 45 percent

Minor components:
Lupton and similar soils (0 to 9 percent of the map unit) in landscape positions similar to those of the Tawas soil
Au Gres and similar soils (0 to 8 percent of the map unit) on slight rises and ridges
Ingalls and similar soils (0 to 3 percent of the map unit) on slight rises and ridges

Typical Profile

Tawas
Oa1—0 to 6 inches; black muck
Oa2—6 to 25 inches; black muck
Cg—25 to 80 inches; dark grayish brown sand

Deford
Oa—0 to 6 inches; black and very dark brown muck
A—6 to 8 inches; light gray dark brown sand
C—8 to 80 inches; light gray and brown sand

Soil Properties and Qualities

Parent material: Tawas—organic material over sandy drift; Deford—sandy glaciofluvial deposits
Surface runoff class: Negligible
Slope: Tawas—0 to 4 percent; Dawson—0 to 2 percent
Potential for frost action: Tawas—high; Dawson—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Tawas—very poorly drained; Deford—poorly drained
Available water capacity: Tawas—about 11.5 inches to a depth of 60 inches; Deford—about 5.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Tawas—moderately rapid over rapid; Deford—rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, October, November, December); Tawas—at the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Depth and most likely period of ponding: Tawas—0.2 foot (March, April, May, June, October, November); Deford—0.2 foot (all year)

Use and Management

Land use: Major use—woodland; other use—wetland wildlife habitat

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

Building site development
Major management concerns: Tawas—cutbanks caving, ponding, severe wetness, low strength; Deford—cutbanks caving, ponding, severe wetness

Septic tank absorption fields

Major management concerns: Tawas—poor filtering capacity, ponding, low strength, severe wetness; Deford—poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: Tawas—6w; Deford—5w
Michigan soil management group: Tawas—M/4c; Deford—4
Prime farmland category: Not prime farmland
Hydric soil status: Hydric
Forest habitat type: Tawas—TTM, TTS; Deford—TTS, TTM

15B—Dawson-Croswell complex, 0 to 8 percent slopes

Setting

Landform: Depressions, bogs, low ridges, and knolls on outwash plains, moraines, and lake plains

Map Unit Composition

Major components:
Dawson and similar soils: 45 to 75 percent
Croswell and similar soils: 25 to 40 percent

Minor components:
Kinross and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Dawson soil
Au Gres and similar soils (0 to 5 percent of the map unit) on low beach ridges
Loxley and similar soils (0 to 3 percent of the map unit) in landscape positions similar to those of the Dawson soil

Typical Profile

Dawson
Oi—0 to 6 inches; dark brown and brown peat
Oa—6 to 38 inches; black and very dark gray muck
C—38 to 80 inches; very dark grayish brown, dark grayish brown, and brown sand

Croswell
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 11 inches; pinkish gray sand
Bs—11 to 21 inches; dark brown and dark yellowish brown sand
BC—21 to 34 inches; yellowish brown sand
C—34 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Dawson—organic herbaceous material over sandy glaciolacustrine deposits; Croswell—sandy glaciolacustrine and glaciofluvial deposits
Slope: Dawson—0 to 1 percent; Croswell—0 to 8 percent
Surface runoff class: Negligible
Potential for frost action: Dawson—high; Croswell—low
Depth to restrictive feature: More than 80 inches
Drainage class: Dawson—very poorly drained; Croswell—moderately well drained
Available water capacity: Dawson—about 17.8 inches to a depth of 60 inches; Croswell—about 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Dawson—moderately rapid over rapid; Croswell—rapid
Flooding: None
Depth to seasonal high water table: Dawson—at the surface (January, February, March, April, May, June, September, October, November, December); Croswell—2.0 to 6.7 feet (April, May)
Months in which ponding does not occur: Dawson—July, August, September; Croswell—all year
Depth and most likely period of ponding: Dawson—0.5 foot (April, May)

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Dawson—seedling mortality, windthrow hazard, excess humus, low strength; Croswell—sandy textures, seedling mortality

Building site development
Major management concerns: Dawson—cutbanks caving, ponding, severe wetness, low strength, subsidence; Croswell—cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Dawson—poor filtering capacity, ponding, low strength, subsidence, severe wetness; Croswell—slope, poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: Dawson—7w; Croswell—6s
Michigan soil management group: Dawson—M/4c-a; Croswell—5a
Prime farmland category: Not prime farmland
Hydric soil status: Dawson—hydric; Croswell—not hydric
Forest habitat type: Dawson—PCS, TMC-Vac; Croswell—AQV, TMC-Vac

20E—Rock outcrop, gently sloping to steep

Setting

Landform: Upland rocky knolls and ridges to lakeshore complexes

Map Unit Composition

Major components:
Rock outcrop: 90 to 100 percent

Minor components:
Arcadian and similar soils (0 to 7 percent of the map unit) on ridges, knolls, and hillslopes
Nipissing and similar soils (0 to 6 percent of the map unit) on ridges, knolls, and hillslopes

Properties and Qualities

Kind of bedrock: Conglomerate, basalt, and sandstone
Slope: 2 to 35 percent
Surface runoff class: Very high

Use and Management

Land use: Major use—idle land; other use—wildlife habitat
Note: Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: Not applicable
Michigan soil management group: Not applicable
Prime farmland category: Not applicable
Hydric soil status: Not applicable
Forest habitat type: Not applicable

21G—Rock outcrop-Arcadian complex, 40 to 90 percent slopes, extremely bouldery

Setting

Landform: Rocky knolls and ridges on bedrock-controlled moraines

Map Unit Composition

Major components:
Rock outcrop: 45 to 85 percent
Arcadian, extremely bouldery, and similar soils: 20 to 40 percent

Minor components:
Michigamme and similar soils (0 to 9 percent of the map unit) in landscape positions similar to those of the Arcadian soil

Typical Profile

Arcadian
Oa—0 to 3 inches; black, highly decomposed plant material
E—3 to 5 inches; dark brown very gravelly fine sandy loam
Bhs—5 to 12 inches; dark reddish brown very gravelly fine sandy loam
2R—12 inches; conglomerate bedrock

Properties and Qualities of the Arcadian Soil

Parent material: Loamy-skeletal drift over basalt and conglomerate bedrock
Slope: 40 to 90 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: 10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Available water capacity: About 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—idle land; other use—wildlife habitat
Note: Onsite investigation is needed to determine the suitability for specific uses.

Woodland
Major management concerns: Arcadian—erosion, surface boulders, rock fragments, seedling mortality, windthrow hazard, slope, rock outcrops

Building site development
Major management concerns: Arcadian—surface stones, surface boulders, depth to bedrock, slope

Septic tank absorption fields

Major management concerns: Arcadian—surface stones, surface boulders, slope, restricted permeability, depth to bedrock

Interpretive Groups

Land capability classification: Arcadian—7s
Michigan soil management group: Arcadian—Ra
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: Arcadian—TMC-Vac, AQVac

39A—Betsy Bay-Burt-Deford complex, 0 to 3 percent slopes

Setting

Landform: Beach ridges and depressions on lakeshore complexes and depressions on lake plains

Map Unit Composition

Major components:

Betsy Bay and similar soils: 40 to 75 percent
Burt and similar soils: 20 to 30 percent
Deford and similar soils: 10 to 25 percent

Minor components:

Assinins and similar soils (0 to 8 percent of the map unit) in landscape positions similar to those of the Betsy Bay soil
Zeba, stony, and similar soils (0 to 6 percent of the map unit) in landscape positions similar to those of the Betsy Bay soil
Au Gres and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Betsy Bay soil

Typical Profile

Betsy Bay
Oa—0 to 1 inch; very dark brown, highly decomposed plant material
E—1 to 18 inches; light brownish gray sand
Bw—18 to 26 inches; bark brown sand
Cr—26 to 43 inches; brown flaggy sand
2R—43 inches; yellowish, unweathered sandstone bedrock

Burt
Oa—0 to 4 inches; muck
A—4 to 6 inches; very dark gray mucky sand
Cg—6 to 12 inches; grayish brown sand
C—12 to 17 inches; brown sand
R—17 inches; brown, unweathered sandstone bedrock

Deford
Oa—0 to 6 inches; black and very dark brown, highly decomposed plant material
A—6 to 8 inches; light gray dark brown sand
C—8 to 80 inches; light gray and brown sand

Soil Properties and Qualities

Parent material: Betsy Bay—sandy glaciofluvial and glaciolacustrine deposits; Burt—sandy residuum over sandstone; Deford—sandy glaciofluvial deposits
Slope: Betsy Bay—0 to 3 percent; Burt—0 to 3 percent; Deford—0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: Betsy Bay—30 to 50 inches to bedrock (lithic); Burt—12 to 20 inches to bedrock (lithic); Deford—more than 80 inches
Drainage class: Betsy Bay—somewhat poorly drained; Burt and Deford—poorly drained
Available water capacity: Betsy Bay—about 3.6 inches to a depth of 60 inches; Burt—about 2.4 inches to a depth of 60 inches; Deford—about 5.6 inches to a depth of 60 inches
Shrink-swell potential: Betsy Bay—low; Burt—moderate; Deford—low
Permeability: Betsy Bay—rapid over moderately slow; Burt—moderately rapid; Deford—rapid
Flooding: None
Depth to seasonal high water table: Betsy Bay—0.5 foot to 6.7 feet (April, May); Burt—at the surface (January, February, March, April, May, October, November, December); Deford—at the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: Burt—January, February, June, July, August, September, December; Betsy Bay—all year
Depth and most likely period of ponding: Burt—0.5 foot (March, April, May, October, November); Deford—0.2 foot (all year)

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Betsy Bay—seedling mortality, windthrow hazard, seasonal wetness; Burt—seedling mortality, windthrow hazard, depth to bedrock, severe wetness; Deford—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Betsy Bay—cutbanks caving, depth to bedrock, seasonal wetness; Burt—ponding, severe wetness; Deford—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Betsy Bay—poor filtering capacity, restricted permeability, depth to bedrock, severe wetness; Burt—restricted permeability, ponding, depth to bedrock; Deford—poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: Betsy Bay—3w; Burt—7w; Deford—5w
Michigan soil management group: Betsy Bay—4/Rbc; Burt—Rbc; Deford—4c
Prime farmland category: Not prime farmland
Hydric soil status: Betsy Bay—not hydric; Burt and Deford—hydric
Forest habitat type: Betsy Bay—TMC-Vac, TTS; Burt and Deford—TTS, TTM

47A—Zeba-Jacobsville complex, 0 to 3 percent slopes, stony

Setting

Landform: Depressions and drainageways on ground moraines and knolls on lake benches

Map Unit Composition

Major components:
Zeba, stony, and similar soils: 45 to 65 percent
Jacobsville, stony, and similar soils: 20 to 35 percent

Minor components:
Chocolay and similar soils (0 to 8 percent of the map unit) on ridges and knolls
Abbaye and similar soils (0 to 8 percent of the map unit) on ridges and knolls
Burt and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Jacobsville soil

Typical Profile

Zeba
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 3 inches; brown fine sandy loam, loamy sand
Bs—3 to 9 inches; dark reddish brown fine sandy loam
E/B—9 to 14 inches; reddish brown loamy sand and fine sandy loam
B/E—14 to 25 inches; reddish brown fine sandy loam and loamy sand
2Cr—25 to 27 inches; reddish brown very channery fine sandy loam and very channery loamy coarse sand
2R—27 inches; reddish brown and pinkish gray, unweathered sandstone bedrock

Jacobsville
Oa—0 to 5 inches; very dark gray, highly decomposed plant material
Eg—5 to 12 inches; brown fine sandy loam
Bw—12 to 20 inches; reddish brown gravelly fine sandy loam
C—20 to 21 inches; reddish brown channery fine sandy loam
2Cr—21 to 22 inches; weathered sandstone bedrock
2R—22 inches; sandstone bedrock

Soil Properties and Qualities

Parent material: Zeba—loamy drift over sandstone; Jacobsville—loamy till deposits over sandstone
Slope: Zeba—0 to 3 percent; Jacobsville—0 to 2 percent
Surface runoff class: Zeba—low; Jacobsville—very low
Potential for frost action: High
Depth to restrictive feature: 26 to 36 inches to bedrock (lithic)
Drainage class: Zeba—somewhat poorly drained; Jacobsville—poorly drained
Available water capacity: Zeba—about 4.8 inches to a depth of 60 inches; Jacobsville—about 4.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: Zeba—0.5 foot to 2.8 feet (May); Jacobsville—at the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: Jacobsville—January, February, June, July, August, September, December; Zeba—all year

Depth and most likely period of ponding: Jacobsville—0.5 foot (March, April, May, October, November)

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland

Major management concerns: Zeba—surface channers, surface stones, seedling mortality, windthrow hazard, depth to bedrock, seasonal wetness; Jacobsville—surface channers, surface stones, rock fragments, seedling mortality, windthrow hazard, depth to bedrock, severe wetness

Building site development

Major management concerns: Zeba—surface channers, surface stones, depth to bedrock, seasonal wetness; Jacobsville—surface channers, surface stones, ponding, severe wetness

Septic tank absorption fields

Major management concerns: Zeba—surface channers, surface stones, restricted permeability, depth to bedrock, severe wetness; Jacobsville—surface channers, surface stones, ponding, depth to bedrock, severe wetness

Interpretive Groups

Land capability classification: Zeba—3w; Jacobsville—5w
Michigan soil management group: Zeba—3/Rbc; Jacobsville—3/Rbc
Prime farmland category: Not prime farmland
Hydric soil status: Zeba—not hydric; Jacobsville—hydric
Forest habitat type: Zeba—TMC-D, TMC; Jacobsville—TTM, TMC-Vac

51C—Arcadian-Nipissing-Rock outcrop complex, dissected, 1 to 12 percent slopes, very stony

Setting

Landform: Ridges and hills on lake bench ridges and moraines

Map Unit Composition

Major components:
Arcadian, dissected, very stony, and similar soils: 35 to 60 percent
Nipissing, dissected, very stony, and similar soils: 25 to 35 percent
Rock outcrop: 10 to 25 percent

Minor components:
Gratiot and similar soils (0 to 8 percent of the map unit) in depressions and drainageways
Copper Harbor and similar soils (0 to 7 percent of the map unit) in the slightly lower landscape positions
Paavola and similar soils (0 to 6 percent of the map unit) in the slightly lower landscape positions

Typical Profile

Arcadian

Oa—0 to 3 inches; black, highly decomposed plant material
E—3 to 5 inches; dark brown very gravelly fine sandy loam
Bhs—5 to 12 inches; dark reddish brown very gravelly fine sandy loam
2R—12 inches; conglomerate bedrock

Nipissing
Oi—0 to 1 inch; black, moderately decomposed plant material
Oa—1 to 3 inches; black, highly decomposed plant material
E—3 to 4 inches; dark reddish gray very cobbly fine sandy loam
Bhs1—4 to 20 inches; dark reddish brown extremely cobbly fine sandy loam
Bhs2—20 to 29 inches; very dusky red extremely cobbly fine sandy loam
Bs—29 to 35 inches; dark reddish brown extremely cobbly fine sandy loam
2C—35 to 39 inches; fragmental material
3R—39 inches; conglomerate and basalt bedrock

Soil Properties and Qualities

Parent material: Arcadian—loamy-skeletal drift over basalt and conglomerate bedrock; Nipissing—loamy-skeletal over fragmental drift over conglomerate and basalt bedrock
Slope: 1 to 12 percent
Surface runoff class: Arcadian—medium; Nipissing—low
Potential for frost action: Moderate
Depth to restrictive feature: Arcadian—10 to 20 inches to bedrock (lithic); Nipissing—20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Available water capacity: Arcadian—about 2.0 inches to a depth of 60 inches; Nipissing—about 3.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Arcadian—moderate; Nipissing—moderately rapid over very rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat
Note: Onsite investigation is needed to determine the suitability for specific uses.

Woodland
Major management concerns: Arcadian—surface stones, rock fragments, seedling mortality, windthrow hazard, depth to bedrock, rock outcrops; Nipissing—surface stones, rock fragments, seedling mortality, depth to bedrock

Building site development
Major management concerns: Arcadian—surface stones, depth to bedrock, slope; Nipissing—surface stones, large stones, depth to bedrock, slope

Septic tank absorption fields
Major management concerns: Arcadian—surface stones, slope, depth to bedrock; Nipissing—surface stones, large stones, slope, poor filtering capacity, depth to bedrock

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: Arcadian—Ra; Nipissing—G/Ra
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: TMV, ATD

51E—Arcadian-Nipissing-Rock outcrop complex, dissected, 8 to 35 percent slopes, very stony

Setting

Landform: Ridges, escarpments, and hills on lake benches; escarpments and ridges on moraines

Map Unit Composition

Major components:
Arcadian, dissected, very stony, and similar soils: 40 to 80 percent
Nipissing, dissected, very stony, and similar soils: 10 to 40 percent
Rock outcrop: 10 to 20 percent

Minor components:
Waiska and similar soils (0 to 9 percent of the map unit) in landscape positions similar to those of the Nipissing soil
Paavola and similar soils (0 to 4 percent of the map unit) in landscape positions similar to those of the Nipissing soil
Gratiot and similar soils (0 to 3 percent of the map unit) in depressions and drainageways

Typical Profile

Arcadian
Oa—0 to 3 inches; black, highly decomposed plant material
E—3 to 5 inches; dark brown very gravelly fine sandy loam
Bhs—5 to 12 inches; dark reddish brown very gravelly fine sandy loam
2R—12 inches; conglomerate bedrock

Nipissing
Oi—0 to 1 inch; black, moderately decomposed plant material
Oa—1 to 3 inches; black, highly decomposed plant material
E—3 to 4 inches; dark reddish gray very cobbly fine sandy loam
Bhs1—4 to 20 inches; dark reddish brown extremely cobbly fine sandy loam
Bhs2—20 to 29 inches; very dusky red extremely cobbly fine sandy loam
Bs—29 to 35 inches; dark reddish brown extremely cobbly fine sandy loam
2C—35 to 39 inches; fragmental material
3R—39 inches; conglomerate and basalt bedrock

Soil Properties and Qualities

Parent material: Arcadian—loamy-skeletal drift over conglomerate and basalt bedrock; Nipissing—loamy-skeletal over fragmental drift over conglomerate and basalt bedrock
Slope: 8 to 35 percent
Surface runoff class: Arcadian—high; Nipissing—low
Potential for frost action: Moderate
Depth to restrictive feature: Arcadian—10 to 20 inches to bedrock (lithic); Nipissing—20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Available water capacity: Arcadian—about 2.0 inches to a depth of 60 inches; Nipissing—about 3.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Arcadian—moderate; Nipissing—moderately rapid over very rapid

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

Use and Management

Land use: Major uses—wetland; other uses—wildlife habitat, idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Woodland
Major management concerns: Arcadian—erosion, surface stones, rock fragments, seedling mortality, windthrow hazard, slope, dissected slopes; Nipissing—erosion, surface stones, rock fragments, seedling mortality, slope, dissected slopes, rock outcrops

Building site development
Major management concerns: Arcadian—surface stones, depth to bedrock, slope; Nipissing—surface stones, large stones, depth to bedrock, slope

Septic tank absorption fields
Major management concerns: Arcadian—surface stones, slope, depth to bedrock; Nipissing—surface stones, large stones, slope, poor filtering capacity, depth to bedrock

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: Arcadian—Ra; Nipissing—G/Ra
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: TM, TMV

52C—Arcadian-Dishno-Rock outcrop complex, dissected, 1 to 12 percent slopes, very bouldery

Setting

Landform: Ridges, escarpments, and hills on moraines and lake plains

Map Unit Composition

Major components:
Arcadian and similar soils: 40 to 55 percent
Dishno and similar soils: 20 to 35 percent
Rock outcrop: 10 to 25 percent

Minor components:
Gratiot and similar soils (0 to 8 percent of the map unit) in depressions and drainageways
Montreal and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Dishno soil
Paavola and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Dishno soil

Typical Profile

Arcadian
Oa—0 to 3 inches; black, highly decomposed plant material
E—3 to 5 inches; dark brown very gravelly fine sandy loam

Bhs—5 to 12 inches; dark reddish brown very gravelly fine sandy loam
2R—12 inches; conglomerate bedrock

Dishno
Oe—0 to 1 inch; dark reddish brown, moderately decomposed plant material
A—1 to 3 inches; dark reddish brown cobbly very fine sandy loam
E—3 to 4 inches; reddish gray cobbly very fine sandy loam
Bhs—4 to 8 inches; dark brown cobbly very fine sandy loam
Bs—8 to 26 inches; dark brown and brown cobbly very fine sandy loam
2BC—26 to 31 inches; brown very cobbly loamy sand
2C—31 to 42 inches; brown very cobbly loamy sand
3R—42 inches; unweathered basalt bedrock

Soil Properties and Qualities

Parent material: Arcadian—loamy-skeletal drift over basalt and conglomerate bedrock; Dishno—loamy and silty eolian deposits over coarse-loamy and sandy or sandy-skeletal till deposits over conglomerate and basalt bedrock
Slope: 1 to 12 percent
Surface runoff class: Arcadian—medium; Dishno—low
Potential for frost action: Moderate
Depth to restrictive feature: Arcadian—10 to 20 inches to bedrock (lithic); Dishno—40 to 60 inches to bedrock (lithic)
Drainage class: Arcadian—well drained; Dishno—moderately well drained
Available water capacity: Arcadian—about 2.0 inches to a depth of 60 inches; Dishno—about 6.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Arcadian—moderate; Dishno—moderate over moderately rapid
Flooding: None
Depth to seasonal high water table: Arcadian—more than 6.5 feet; Dishno—1.0 to 3.8 feet (April, October)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development, idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Woodland
Major management concerns: Arcadian—surface boulders, rock fragments, seedling mortality, windthrow hazard, depth to bedrock, rock outcrops; Dishno—surface boulders, rock fragments, clayey textures, seedling mortality, soil rutting, seasonal wetness, rock outcrops

Building site development
Major management concerns: Arcadian—surface stones, surface boulders, depth to bedrock, slope; Dishno—surface stones, surface boulders, depth to bedrock, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Arcadian—surface stones, surface boulders, slope, depth to bedrock; Dishno—surface stones, surface boulders, slope, depth to bedrock, severe wetness

Interpretive Groups

Land capability classification: Arcadian—7s; Dishno—6s
Michigan soil management group: Arcadian—Ra; Dishno—3a

Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: Arcadian—AVO, ATD; Dishno—ATD, AVO

52E—Arcadian-Dishno-Rock outcrop complex, dissected, 8 to 35 percent slopes, very bouldery

Setting

Landform: Ridges, escarpments, and hills on moraines and lake plains

Map Unit Composition

Major components:
Arcadian, dissected, very bouldery, and similar soils: 40 to 55 percent
Dishno, dissected, very bouldery, and similar soils: 20 to 35 percent
Rock outcrop: 10 to 25 percent

Minor components:
Montreal and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Dishno soil
Paavola and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Dishno soil
Gratiot and similar soils (0 to 3 percent of the map unit) in depressions and drainageways

Typical Profile

Arcadian
Oa—0 to 3 inches; black, highly decomposed plant material
E—3 to 5 inches; dark brown very gravelly fine sandy loam
Bhs—5 to 12 inches; dark reddish brown very gravelly fine sandy loam
2R—12 inches; conglomerate bedrock

Dishno
Oe—0 to 1 inch; dark reddish brown, moderately decomposed plant material
A—1 to 3 inches; dark reddish brown cobbly very fine sandy loam
E—3 to 4 inches; reddish gray cobbly very fine sandy loam
Bhs—4 to 8 inches; dark brown cobbly very fine sandy loam
Bs—8 to 26 inches; dark brown and brown cobbly very fine sandy loam
2BC—26 to 31 inches; brown very cobbly loamy sand
2C—31 to 42 inches; brown very cobbly loamy sand
3R—42 inches; unweathered basalt bedrock

Soil Properties and Qualities

Parent material: Arcadian—loamy-skeletal drift over basalt and conglomerate bedrock; Dishno—silty eolian deposits or coarse-loamy over sandy or sandy-skeletal till deposits over conglomerate and basalt bedrock
Slope: 8 to 35 percent
Surface runoff class: Arcadian—high; Dishno—medium
Potential for frost action: Moderate
Depth to restrictive feature: Arcadian—10 to 20 inches to bedrock (lithic); Dishno—40 to 60 inches to bedrock (lithic)
Drainage class: Moderately well drained
Available water capacity: Arcadian—about 2.0 inches to a depth of 60 inches; Dishno—about 6.3 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Arcadian—moderate; Dishno—moderate over moderately rapid
Flooding: None
Depth to seasonal high water table: Arcadian—more than 6.5 feet; Dishno—1.0 to 3.8 feet (April, October)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Woodland
Major management concerns: Arcadian—erosion, surface boulders, rock fragments, seedling mortality, windthrow hazard, slope, dissected slopes; Dishno—erosion, surface boulders, rock fragments, clayey textures, seedling mortality, soil rutting, slope, dissected slopes, rock outcrops

Building site development
Major management concerns: Arcadian—surface stones, surface boulders, depth to bedrock, slope; Dishno—surface stones, surface boulders, cutbanks caving, depth to bedrock, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Arcadian—surface stones, surface boulders, slope, depth to bedrock; Dishno—surface stones, surface boulders, slope, depth to bedrock, severe wetness

Interpretive Groups

Land capability classification: Arcadian—7s; Dishno—7e
Michigan soil management group: Arcadian—Ra; Dishno—3a
Prime farmland category: Not prime farmland
Hydric soil status: Arcadian and Dishno—not hydric
Forest habitat type: Arcadian and Dishno—AVO, ATD

53E—Arcadian-Michigamme-Rock outcrop complex, 8 to 35 percent slopes, extremely bouldery

Setting

Landform: Ridges, escarpments, and hills on moraines

Map Unit Composition

Major components:
Arcadian, extremely bouldery, and similar soils: 40 to 55 percent
Michigamme, extremely bouldery, and similar soils: 20 to 30 percent
Rock outcrop: 15 to 30 percent

Minor components:
Dishno and similar soils (0 to 4 percent of the map unit) in the slightly lower landscape positions
Montreal and similar soils (0 to 3 percent of the map unit) in the slightly lower landscape positions
Paavola and similar soils (0 to 3 percent of the map unit)

Typical Profile

Arcadian
Oa—0 to 3 inches; black, highly decomposed plant material

E—3 to 5 inches; dark brown very gravelly fine sandy loam
Bhs—5 to 12 inches; dark reddish brown very gravelly fine sandy loam
2R—12 inches; conglomerate bedrock;

Michigamme
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 4 inches; dark reddish gray cobbly very fine sandy loam
Bhs—4 to 10 inches; dark brown cobbly very fine sandy loam
Bs—10 to 22 inches; dark brown and brown very cobbly very fine sandy loam
2B/E—22 to 30 inches; brown cobbly loamy sand and bouldery loamy sand
3R—30 inches; unweathered basalt bedrock

Soil Properties and Qualities

Parent material: Arcadian—loamy-skeletal drift over basalt over conglomerate bedrock; Michigamme—silty and loamy eolian deposits over coarse-loamy till over basalt or conglomerate bedrock
Slope: 8 to 35 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: Arcadian—10 to 20 inches to bedrock (lithic); Michigamme—22 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Available water capacity: Arcadian—about 2.0 inches to a depth of 60 inches; Michigamme—about 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat
Note: Onsite investigation is needed to determine the suitability for specific uses.

Woodland
Major management concerns: Arcadian—erosion, surface boulders;,rock fragments, seedling mortality, windthrow hazard, slope, rock outcrops; Michigamme—erosion, surface boulders, rock fragments, clayey textures, seedling mortality, soil rutting, slope, rock outcrops

Building site development
Major management concerns: Arcadian—surface stones, surface boulders, depth to bedrock, slope; Michigamme—surface stones, surface boulders, cutbanks caving

Septic tank absorption fields
Major management concerns: Arcadian—surface stones, surface boulders, slope, depth to bedrock; Michigamme—surface stones, surface boulders, slope, depth to bedrock

Interpretive Groups

Land capability classification: Arcadian—7s; Michigamme—7s
Michigan soil management group: Arcadian—Ra; Michigamme—3/Ra
Prime farmland category: Not prime farmland
Hydric soil status: Arcadian and Michigamme—not hydric
Forest habitat type: Arcadian—ATD, TMV; Michigamme—ATD, TMV

53F—Arcadian-Michigamme-Rock outcrop complex, 35 to 70 percent slopes, extremely bouldery

Setting

Landform: Ridges, escarpments, and hills on moraines

Map Unit Composition

Major components:
Arcadian, extremely bouldery, and similar soils: 40 to 55 percent
Michigamme, extremely bouldery, and similar soils: 20 to 35 percent
Rock outcrop: 10 to 30 percent

Minor components:
Trimountain and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Michigamme soil
Lac La Belle and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Michigamme soil

Typical Profile

Arcadian
Oa—0 to 3 inches; black, highly decomposed plant material
E—3 to 5 inches; dark brown very gravelly fine sandy loam
Bhs—5 to 12 inches; dark reddish brown very gravelly fine sandy loam
2R—12 inches; conglomerate bedrock

Michigamme
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 4 inches; dark reddish gray cobbly very fine sandy loam
Bhs—4 to 10 inches; dark brown cobbly very fine sandy loam
Bs—10 to 22 inches; dark brown and brown very cobbly very fine sandy loam
2B/E—22 to 30 inches; brown cobbly loamy sand and bouldery loamy sand
3R—30 inches; unweathered basalt bedrock

Soil Properties and Qualities

Parent material: Arcadian—loamy-skeletal drift over basalt and conglomerate bedrock; Michigamme—silty and loamy eolian deposits over coarse-loamy till deposits over basalt and conglomerate bedrock
Slope: 35 to 70 percent
Surface runoff class: Arcadian—high; Michigamme—medium
Potential for frost action: Moderate
Depth to restrictive feature: Arcadian—10 to 20 inches to bedrock (lithic); Michigamme—20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Available water capacity: Arcadian—about 2.0 inches to a depth of 60 inches; Michigamme—about 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Woodland

Major management concerns: Arcadian—erosion, surface boulders, rock fragments, seedling mortality, windthrow hazard, slope, rock outcrops; Michigamme—erosion, surface boulders, rock fragments, seedling mortality, soil rutting, slope, rock outcrops

Building site development

Major management concerns: Surface stones, surface boulders, depth to bedrock, slope

Septic tank absorption fields

Major management concerns: Surface stones, surface boulders, slope, depth to bedrock

Interpretive Groups

Land capability classification: Arcadian and Michigamme—7s
Michigan soil management group: Arcadian—Ra; Michigamme—3/Ra
Prime farmland category: Not prime farmland
Hydric soil status: Arcadian and Michigamme—not hydric
Forest habitat type: Arcadian and Michigamme—TMV, ATD

55B—Chocolay very cobbly fine sandy loam, 1 to 8 percent slopes, very flaggy

Setting

Landform: Ridges and knolls on lake benches

Map Unit Composition

Major components:
Chocolay and similar soils: 85 to 95 percent

Minor components:
Zeba, stony, and similar soils (0 to 8 percent of the map unit) in depressions and drainageways
Jacobsville, stony, and similar soils (0 to 8 percent of the map unit) in depressions and drainageways
Burt and similar soils (0 to 7 percent of the map unit) in depressions and drainageways

Typical Profile

Chocolay
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 11 inches; pinkish gray gravelly very fine sandy loam
Bhs—11 to 13 inches; dark reddish brown very gravelly fine sandy loam
Bs—13 to 18 inches; brown very gravelly very fine sandy loam
Cr—18 to 21 inches; brown very flaggy fine sandy loam
2R—21 inches; unweathered sandstone bedrock

Soil Properties and Qualities

Parent material: Loamy-skeletal till deposits over sandstone
Slope: 1 to 8 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Drainage class: Moderately well drained
Available water capacity: About 2.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 1.0 to 2.3 feet (April, October)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Surface flagstones, rock fragments, seedling mortality, depth to bedrock

Building site development
Major management concerns: Surface channers, surface flagstones, large stones, depth to bedrock, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Surface channers, surface flagstones, large stones, slope, depth to bedrock, wetness

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 3/Ra
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: ATD

100B—Waiska cobbly loamy sand, 0 to 8 percent slopes

Setting

Landform: Ridges, hillslopes, and knolls on outwash plains, stream terraces, kames, and eskers

Map Unit Composition

Major components:
Waiska and similar soils: 85 to 95 percent

Minor components:
Copper Harbor and similar soils (0 to 8 percent of the map unit) in the slightly lower landscape positions
Garlic and similar soils (0 to 6 percent of the map unit) in landscape positions similar to those of the Waiska soil
Bete Grise and similar soils (0 to 6 percent of the map unit) in depressions and drainageways

Typical Profile

Waiska
Oi—0 to 1 inch; dark reddish brown, moderately decomposed plant material
E—1 to 7 inches; brown cobbly loamy sand
Bhs—7 to 23 inches; dark brown very gravelly loamy sand
Bs—23 to 35 inches; dark brown extremely gravelly coarse sand

BC—35 to 60 inches; dark brown extremely gravelly coarse sand
C—60 to 80 inches; brown extremely gravelly coarse sand

Soil Properties and Qualities

Parent material: Sandy-skeletal glaciofluvial and glaciolacustrine deposits
Slope: 0 to 8 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 2.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Rock fragments, seedling mortality

Building site development
Major management concerns: Surface stones, cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Surface stones, slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Ga
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: ATD

100D—Waiska cobbly loamy sand, 8 to 15 percent slopes

Setting

Landform: Ridges, hillslopes, and knolls on outwash plains, stream terraces, kames, and eskers

Map Unit Composition

Major components:
Waiska and similar soils: 85 to 95 percent

Minor components:
Copper Harbor and similar soils (0 to 8 percent of the map unit) in the slightly lower landscape positions
Garlic and similar soils (0 to 6 percent of the map unit) in landscape positions similar to those of the Waiska soil
Paavola and similar soils (0 to 6 percent of the map unit) in the slightly lower landscape positions

Typical Profile

Waiska
Oi—0 to 1 inch; dark reddish brown, moderately decomposed plant material
E—1 to 7 inches; brown cobbly loamy sand
Bhs—7 to 23 inches; dark brown very gravelly loamy sand
Bs—23 to 35 inches; dark brown extremely gravelly coarse sand
BC—35 to 60 inches; dark brown extremely gravelly coarse sand
C—60 to 80 inches; brown extremely gravelly coarse sand

Soil Properties and Qualities

Parent material: Sandy-skeletal glaciofluvial and glaciolacustrine deposits
Slope: 8 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 2.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Rock fragments, seedling mortality

Building site development
Major management concerns: Surface stones, cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Surface stones, slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Ga
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: ATD

102C—Waiska-Garlic complex, dissected, 1 to 12 percent slopes, very bouldery

Setting

Landform: Knolls, ridges, and hillslopes on outwash plains, stream terraces, and lake plains

Map Unit Composition

Major components:
Waiska, dissected, very bouldery, and similar soils: 40 to 75 percent
Garlic, dissected, very bouldery, and similar soils: 20 to 50 percent

Minor components:
Borgstrom and similar soils (0 to 9 percent of the map unit) in the slightly lower landscape positions
Copper Harbor and similar soils (0 to 7 percent of the map unit) in the slightly lower landscape positions
Bete Grise and similar soils (0 to 5 percent of the map unit) in depressions and drainageways

Typical Profile

Waiska
Oi—0 to 1 inch; dark reddish brown, moderately decomposed plant material
E—1 to 7 inches; brown cobbly loamy sand
Bhs—7 to 23 inches; dark brown very gravelly loamy sand
Bs—23 to 35 inches; dark brown extremely gravelly coarse sand
BC—35 to 60 inches; dark brown extremely gravelly coarse sand
C—60 to 80 inches; brown extremely gravelly coarse sand

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Waiska—sandy-skeletal glaciofluvial and glaciolacustrine deposits; Garlic—sandy glaciofluvial and sandy-skeletal glaciofluvial and glaciolacustrine deposits
Slope: 1 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Waiska—excessively drained; Garlic—well drained
Available water capacity: Waiska—about 2.3 inches to a depth of 60 inches; Garlic—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Waiska—very rapid; Garlic—moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Waiska—surface boulders, rock fragments, seedling mortality; Garlic—seedling mortality

Building site development
Major management concerns: Waiska—surface boulders, cutbanks caving, slope; Garlic—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Waiska—surface stones, surface boulders, slope, poor filtering capacity; Garlic—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Waiska—6s; Garlic—6s
Michigan soil management group: Waiska—Ga; Garlic—5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: Waiska—ATD, AVO; Garlic—ATD

102E—Waiska-Garlic complex, dissected, 8 to 35 percent slopes, very bouldery

Setting

Landform: Hillslopes, knolls, and ridges on stream terraces, kames, eskers, and outwash plains

Map Unit Composition

Major components:
Waiska, dissected, very bouldery, and similar soils: 40 to 95 percent
Garlic, dissected, very bouldery, and similar soils: 10 to 45 percent

Minor components:
Borgstrom and similar soils (0 to 8 percent of the map unit) in the slightly lower landscape positions
Copper Harbor and similar soils (0 to 6 percent of the map unit) in the slightly lower landscape positions
Paavola and similar soils (0 to 5 percent of the map unit) in the slightly lower landscape positions

Typical Profile

Waiska
Oi—0 to 1 inch; moderately decomposed plant material
E—1 to 7 inches; cobbly loamy sand
Bhs—7 to 23 inches; very gravelly loamy sand
Bs—23 to 35 inches; extremely gravelly coarse sand
BC—35 to 60 inches; extremely gravelly coarse sand
C—60 to 80 inches; extremely gravelly coarse sand

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Waiska—sandy-skeletal glaciofluvial and glaciolacustrine deposits; Garlic—sandy glaciofluvial deposits and glaciolacustrine deposits
Slope: 8 to 35 percent

Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Waiska—excessively drained; Garlic—well drained
Available water capacity: Waiska—about 2.3 inches to a depth of 60 inches; Garlic—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Waiska—very rapid; Garlic—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat

Woodland
Major management concerns: Waiska—erosion, surface boulders, rock fragments, seedling mortality, slope, dissected slopes; Garlic—erosion, surface boulders, seedling mortality, slope, dissected slopes

Building site development
Major management concerns: Waiska—surface stones, surface boulders, cutbanks caving, slope; Garlic—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Waiska—surface stones, surface boulders, slope, poor filtering capacity; Garlic—slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: Waiska—Ga; Garlic—5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: Waiska—ATD, AVO; Garlic—ATD

102F—Waiska-Garlic complex, dissected, 15 to 60 percent slopes, very bouldery

Setting

Landform: Ridges, knolls, and hillslopes on stream terraces, outwash plains, kames, and eskers

Map Unit Composition

Major components:
Waiska, dissected, very bouldery, and similar soils: 45 to 75 percent
Garlic, dissected, very bouldery, and similar soils: 20 to 50 percent

Minor components:
Lac La Belle and similar soils (0 to 6 percent of the map unit) in ravines and in areas of bottom land
Alcona and similar soils (0 to 4 percent of the map unit) in ravines and in areas of bottom land

Typical Profile

Waiska
Oi—0 to 1 inch; dark reddish brown, moderately decomposed plant material
E—1 to 7 inches; brown cobbly loamy sand
Bhs—7 to 23 inches; dark brown very gravelly loamy sand
Bs—23 to 35 inches; dark brown extremely gravelly coarse sand
BC—35 to 60 inches; dark brown extremely gravelly coarse sand
C—60 to 80 inches; brown extremely gravelly coarse sand

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Waiska—sandy-skeletal glaciofluvial and glaciolacustrine deposits; Garlic—sandy glaciofluvial and glaciolacustrine deposits
Slope: 15 to 60 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Waiska—excessively drained; Garlic—well drained
Available water capacity: Waiska—about 2.3 inches to a depth of 60 inches; Garlic—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Waiska—very rapid; Garlic—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Waiska—erosion, surface boulders, rock fragments, seedling mortality, slope, dissected slopes; Garlic—erosion, seedling mortality, slope, dissected slopes

Building site development
Major management concerns: Waiska—surface stones, surface boulders, cutbanks caving, slope; Garlic—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Waiska—surface stones, surface boulders, slope, poor filtering capacity; Garlic—slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: Waiska—Ga; Garlic—5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: Waiska—AVO, ATD; Garlic—ATD

110B—Shelldrake-Croswell complex, 0 to 8 percent slopes

Setting

Landform: Dunes, beaches, and beach ridges on lakeshore complexes

Map Unit Composition

Major components:
Shelldrake and similar soils: 55 to 85 percent
Croswell and similar soils: 10 to 35 percent

Minor components:
Deer Park and similar soils (0 to 6 percent of the map unit) in the higher landscape positions
Au Gres and similar soils (0 to 4 percent of the map unit) in depressions and drainageways
Kinross and similar soils (0 to 3 percent of the map unit) in depressions and drainageways

Typical Profile

Shelldrake
Oe—0 to 1 inch; black, moderately decomposed plant material
E—1 to 6 inches; brown sand
Bw—6 to 13 inches; light brown sand
BC—13 to 23 inches; light brown sand
C—23 to 80 inches; pink sand

Croswell
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 11 inches; pinkish gray sand
Bs—11 to 21 inches; dark brown and dark yellowish brown sand
BC—21 to 34 inches; yellowish brown sand
C—34 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Shelldrake—beach sand on lakeshore deposits; Croswell—sandy glaciolacustrine and glaciofluvial deposits
Slope: 0 to 8 percent
Surface runoff class: Shelldrake—very low; Croswell—negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Shelldrake—excessively drained; Croswell—moderately well drained
Available water capacity: Shelldrake—about 2.5 inches to a depth of 60 inches; Croswell—about 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Shelldrake—very rapid; Croswell—rapid
Flooding: None
Depth to seasonal high water table: Shelldrake—more than 6.5 feet; Croswell—2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, recreation, building site development

Woodland
Major management concerns: Sandy soils, seedling mortality

Building site development
Major management concerns: Shelldrake—cutbanks caving, slope; Croswell—cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Shelldrake—slope, poor filtering capacity; Croswell—slope, poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Shelldrake—5.3a; Croswell—5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: Shelldrake—PVC; Croswell—QAE

111B—Deer Park sand, 0 to 8 percent slopes

Setting

Landform: Beach ridges and dunes on dune fields and lakeshore complexes

Map Unit Composition

Major components:
Deer Park and similar soils: 85 to 100 percent

Minor components:
Rubicon and similar soils (0 to 8 percent of the map unit) in landscape positions similar to those of the Deer Park soil
Shelldrake and similar soils (0 to 7 percent of the map unit) in the higher landscape positions
Croswell and similar soils (0 to 3 percent of the map unit) in the slightly lower landscape positions and in the lowest positions on the landscape

Typical Profile

Deer Park
Oe—0 to 1 inch; black, moderately decomposed plant material
E—1 to 8 inches; grayish brown sand
Bs1—8 to 17 inches; dark yellowish brown fine sand
Bs2—17 to 24 inches; yellowish brown fine sand
BC—24 to 35 inches; brown fine sand
C—35 to 80 inches; pale brown fine sand

Soil Properties and Qualities

Parent material: Eolian and beach sands on lakeshore deposits
Slope: 0 to 8 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None

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

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

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

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: AQV, QAE

111D—Deer Park sand, 6 to 18 percent slopes

Setting

Landform: Dunes and beach ridges on lakeshore complexes and dune fields

Map Unit Composition

Major components:
Deer Park and similar soils: 85 to 100 percent

Minor components:
Rubicon and similar soils (0 to 9 percent of the map unit) in landscape positions similar to those of the Deer Park soil
Croswell and similar soils (0 to 8 percent of the map unit) in the slightly lower landscape positions and in the lowest positions on the landscape

Typical Profile

Deer Park
Oe—0 to 1 inch; black, moderately decomposed plant material
E—1 to 8 inches; grayish brown sand
Bs1—8 to 17 inches; dark yellowish brown fine sand
Bs2—17 to 24 inches; yellowish brown fine sand
BC—24 to 35 inches; brown fine sand
C—35 to 80 inches; pale brown fine sand

Soil Properties and Qualities

Parent material: Eolian and beach sands on lakeshore deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.6 inches to a depth of 60 inches

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

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Erosion, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

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

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: QAE, AQV

111E—Deer Park sand, 8 to 35 percent slopes

Setting

Landform: Dunes and beach ridges on dune fields and lakeshore complexes

Map Unit Composition

Major components:
Deer Park and similar soils: 85 to 100 percent

Minor components:
Rubicon and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Deer Park soil

Typical Profile

Deer Park
Oe—0 to 1 inch; black, moderately decomposed plant material
E—1 to 8 inches; grayish brown sand
Bs1—8 to 17 inches; dark yellowish brown fine sand
Bs2—17 to 24 inches; yellowish brown fine sand
BC—24 to 35 inches; brown fine sand
C—35 to 80 inches; pale brown fine sand

Soil Properties and Qualities

Parent material: Eolian and beach sand on lakeshore deposits
Slope: 8 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained

Available water capacity: About 4.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Erosion, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

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

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: AQV, QAE

111F—Deer Park sand, 35 to 70 percent slopes

Setting

Landform: Dunes and beach ridges on lakeshore complexes and dune fields

Map Unit Composition

Major components:
Deer Park and similar soils: 80 to 95 percent

Minor components:
Rubicon and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Deer Park soil

Typical Profile

Deer Park
Oe—0 to 1 inch; black, moderately decomposed plant material
E—1 to 8 inches; grayish brown sand
Bs1—8 to 17 inches; dark yellowish brown fine sand
Bs2—17 to 24 inches; yellowish brown fine sand
BC—24 to 35 inches; brown fine sand
C—35 to 80 inches; pale brown fine sand

Soil Properties and Qualities

Parent material: Eolian and beach sand on lakeshore deposits
Slope: 35 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained
Available water capacity: About 4.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Erosion, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

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

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: QAE, AQV

112C—Deer Park-Croswell complex, 1 to 12 percent slopes

Setting

Landform: Low sand ridges and dunes on lakeshore complexes

Map Unit Composition

Major components:
Deer Park and similar soils: 40 to 85 percent
Croswell and similar soils: 10 to 25 percent

Minor components:
Rubicon and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Deer Park soil
Au Gres and similar soils (0 to 8 percent of the map unit) in depressions and drainageways
Kinross and similar soils (0 to 6 percent of the map unit) in depressions and drainageways

Typical Profile

Deer Park
Oe—0 to 1 inch; black, moderately decomposed plant material
E—1 to 8 inches; grayish brown fine sand
Bs1—8 to 17 inches; dark yellowish brown fine sand
Bs2—17 to 24 inches; yellowish brown fine sand
BC—24 to 35 inches; brown fine sand
C—35 to 80 inches; pale brown fine sand

Croswell
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 11 inches; pinkish gray sand
Bs—11 to 21 inches; dark brown and dark yellowish brown sand
BC—21 to 34 inches; yellowish brown sand
C—34 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Deer Park—beach sand on lakeshore deposits; Croswell—sandy glaciolacustrine and glaciofluvial deposits
Slope: 1 to 12 percent
Surface runoff class: Deer Park—very low; Croswell—negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Deer Park—excessively drained; Croswell—moderately well drained
Available water capacity: Deer Park—about 4.6 inches to a depth of 60 inches; Croswell—about 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Deer Park—rapid; Croswell—moderately rapid
Flooding: None
Depth to seasonal high water table: Deer Park—more than 6.5 feet; Croswell—2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Deer Park—seedling mortality; Croswell—sandy textures, seedling mortality

Building site development
Major management concerns: Deer Park—cutbanks caving, slope; Croswell—cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Deer Park—slope, poor filtering capacity; Croswell—slope, poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: Deer Park—7s; Croswell—7s
Michigan soil management group: Deer Park—5.3a; Croswell—5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: Deer Park—QAE; Croswell—QAE, TMC-Vac

113C—Rubicon-Croswell complex, 1 to 12 percent slopes

Setting

Landform: Beach ridges and dunes on lakeshore complexes and dune fields

Map Unit Composition

Major components:
Rubicon and similar soils: 30 to 75 percent
Croswell and similar soils: 10 to 35 percent

Minor components:
- Wallace and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Rubicon soil
- Au Gres and similar soils (0 to 8 percent of the map unit) in depressions and drainageways
- Deford and similar soils (0 to 5 percent of the map unit) in depressions and drainageways

Typical Profile

Rubicon
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown sand
Bs—7 to 34 inches; dark brown sand
BC—34 to 44 inches; brown sand
C—44 to 80 inches; light brown sand

Croswell
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 11 inches; pinkish gray sand
Bs—11 to 21 inches; dark brown and dark yellowish brown sand
BC—21 to 34 inches; yellowish brown sand
C—34 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Rubicon—sandy glaciolacustrine and eolian deposits; Croswell—sandy glaciolacustrine and glaciofluvial deposits
Slope: 1 to 12 percent
Surface runoff class: Rubicon—very low; Croswell—negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Rubicon—excessively drained; Croswell—moderately well drained
Available water capacity: About 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: Rubicon—more than 6.5 feet; Croswell—2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Rubicon—cutbanks caving, slope; Croswell—cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Rubicon—slope, poor filtering capacity; Croswell—slope, poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: Rubicon—7s; Croswell—6s
Michigan soil management group: Rubicon—5.3a; Croswell—5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: Rubicon—AQVac, TMC; Croswell—AQV, TMC-Vac

120B—Garlic fine sand, 0 to 8 percent slopes

Setting

Landform: Knolls, hillslopes, and ridges on stream terraces and till-floored lake plains

Map Unit Composition

Major components:
Garlic and similar soils: 85 to 100 percent

Minor components:
Waiska and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Garlic soil
Alcona and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Garlic soil
Rubicon and similar soils (0 to 3 percent of the map unit) in landscape positions similar to those of the Garlic soil

Typical Profile

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial and glaciolacustrine deposits
Slope: 0 to 8 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

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

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: TM, ATD-D

120D—Garlic fine sand, 8 to 15 percent slopes

Setting

Landform: Hillslopes, ridges, and knolls on stream terraces and till-floored lake plains

Map Unit Composition

Major components:
Garlic and similar soils: 85 to 100 percent

Minor components:
Waiska and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Garlic soil
Alcona and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Garlic soil
Rubicon and similar soils (0 to 3 percent of the map unit) in landscape positions similar to those of the Garlic soil

Typical Profile

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial and glaciolacustrine deposits
Slope: 8 to 15 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

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

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: TM, ATD-D

120E—Garlic fine sand, 15 to 35 percent slopes

Setting

Landform: Hillslopes, ridges, and knolls on stream terraces and till-floored lake plains

Map Unit Composition

Major components:
Garlic and similar soils: 80 to 95 percent

Minor components:
Waiska and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Garlic soil
Alcona and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Garlic soil
Rubicon and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Garlic soil

Typical Profile

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial and glaciolacustrine deposits
Slope: 15 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.4 inches to a depth of 60 inches

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

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Erosion, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

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

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: TM, ATD-D

125A—Croswell-Au Gres complex, 0 to 3 percent slopes

Setting

Landform: Ridges and knolls on outwash plains and stream terraces; dunes on beach ridges, lake plains, and shoreline complexes

Map Unit Composition

Major components:
Croswell and similar soils: 45 to 80 percent
Au Gres and similar soils: 10 to 35 percent

Minor components:
Rubicon and similar soils (0 to 8 percent of the map unit) in the higher landscape positions
Deford and similar soils (0 to 6 percent of the map unit) in depressions and drainageways
Kinross and similar soils (0 to 5 percent of the map unit) in depressions and drainageways

Typical Profile

Croswell
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 11 inches; pinkish gray sand
Bs—11 to 21 inches; dark brown and dark yellowish brown sand
BC—21 to 34 inches; yellowish brown sand
C—34 to 80 inches; brown sand

Au Gres
Oa—0 to 4 inches; black, highly decomposed plant material
E—4 to 13 inches; pinkish gray sand
Bhs—13 to 19 inches; dark brown sand

Bs—19 to 28 inches; dark brown sand
BC—28 to 34 inches; brown sand
C—34 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Croswell—sandy glaciolacustrine and glaciofluvial deposits; Au Gres—sandy glaciofluvial and glaciolacustrine deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Croswell—low; Au Gres—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Croswell—moderately well drained; Au Gres—somewhat poorly drained
Available water capacity: Croswell—about 4.3 inches to a depth of 60 inches; Au Gres—about 5.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: Croswell—2.0 to 6.7 feet (April, May); Au Gres—0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major uses—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Croswell—sandy textures, seedling mortality; Au Gres—seedling mortality, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Croswell—cutbanks caving, seasonal wetness; Au Gres—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Croswell—poor filtering capacity, seasonal wetness; Au Gres—poor filtering capacity, wetness

Interpretive Groups

Land capability classification: Croswell—4s; Au Gres—4w
Michigan soil management group: Croswell—5a; Au Gres—5b
Prime farmland category: Not prime farmland;
Hydric soil status: Croswell—not hydric; Au Gres—not hydric
Forest habitat type: Croswell—AQVac; Au Gres-TMC-Vac

126B—Au Gres-Deford-Croswell complex, 0 to 6 percent slopes

Setting

Landform: Beach ridges and depressions on lake plains and shoreline complexes

Map Unit Composition

Major components:
Au Gres and similar soils: 40 to 60 percent

Deford and similar soils: 20 to 40 percent
Croswell and similar soils: 10 to 25 percent

Minor components:
Tawas and similar soils (0 to 8 percent of the map unit) in landscape positions similar to those of the Deford soil
Rubicon and similar soils (0 to 7 percent of the map unit) in the higher landscape positions
Kinross and similar soils (0 to 4 percent of the map unit) in landscape positions similar to those of the Deford soil

Typical Profile

Au Gres
Oa—0 to 4 inches; black, highly decomposed plant material
E—4 to 13 inches; pinkish gray sand
Bhs—13 to 19 inches; dark brown sand
Bs—19 to 28 inches; dark brown sand
BC—28 to 34 inches; brown sand
C—34 to 80 inches; brown sand

Deford
Oa—0 to 6 inches; black and very dark brown, highly decomposed plant material
A—6 to 8 inches; light gray dark brown sand
C—8 to 80 inches; light gray and brown sand

Croswell
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 11 inches; pinkish gray sand
Bs—11 to 21 inches; dark brown and dark yellowish brown sand
BC—21 to 34 inches; yellowish brown sand
C—34 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Au Gres and Croswell—sandy glaciofluvial and glaciolacustrine deposits; Deford—sandy glaciofluvial deposits
Slope: Au Gres and Croswell—0 to 6 percent; Deford—0 to 2 percent
Surface runoff class: Au Gres and Deford—negligible; Croswell—very low
Potential for frost action: Au Gres and Deford—moderate; Croswell—low
Depth to restrictive feature: More than 80 inches
Drainage class: Au Gres—somewhat poorly drained; Deford—poorly drained; Croswell—moderately well drained
Available water capacity: Au Gres and Deford—about 5.6 inches to a depth of 60 inches; Croswell—about 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: Au Gres—0.5 foot to 6.7 feet (April, May); Deford—at the surface (January, February, March, April, May, October, November, December); Croswell—2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland

Major management concerns: Au Gres and Deford—seedling mortality, windthrow hazard, seasonal wetness; Croswell—sandy textures, seedling mortality

Building site development

Major management concerns: Au Gres and Croswell—cutbanks caving, seasonal wetness; Deford—cutbanks caving, ponding, wetness

Septic tank absorption fields

Major management concerns: Au Gres—poor filtering capacity, wetness; Deford—poor filtering capacity, ponding, wetness; Croswell—poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: Au Gres—4w; Deford—5w; Croswell—6s
Michigan soil management group: Au Gres—5b; Deford—4c; Croswell—5a
Prime farmland category: Not prime farmland
Hydric soil status: Au Gres and Croswell—not hydric; Deford—hydric
Forest habitat type: Au Gres—TMC-Vac; Deford—TMC-Vac, AQVac; Croswell—TMC-Vac, AQVac

127A—Au Gres-Kinross complex, 0 to 3 percent slopes

Setting

Landform: Beach ridges and depressions on shoreline complexes and lake plains

Map Unit Composition

Major components:
Au Gres and similar soils: 40 to 70 percent
Kinross and similar soils: 20 to 40 percent

Minor components:
Croswell and similar soils (0 to 10 percent of the map unit) in the slightly higher landscape positions
Dawson and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Kinross soil

Typical Profile

Au Gres
Oa—0 to 4 inches; black, highly decomposed plant material
E—4 to 13 inches; pinkish gray sand
Bhs—13 to 19 inches; dark brown sand
Bs—19 to 28 inches; dark brown sand
BC—28 to 34 inches; brown sand
C—34 to 80 inches; brown sand

Kinross
Oi—0 to 2 inches; brown peat
Oa—2 to 6 inches; brown muck
E—6 to 16 inches; pinkish gray sand
Bhs—16 to 32 inches; dark brown sand
C—32 to 80 inches; dark grayish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial and glaciolacustrine deposits

Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Au Gres—somewhat poorly drained; Kinross—very poorly drained
Available water capacity: Au Gres—about 5.6 inches to a depth of 60 inches; Kinross—about 6.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: Au Gres—0.5 foot to 6.7 feet (April, May); Kinross—at the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: Kinross—January, February, June, July, August, September, December; Au Gres—all year
Depth and most likely period of ponding: Kinross—0.5 foot (March, April, May, November)

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Au Gres—seedling mortality, windthrow hazard, seasonal wetness; Kinross—seedling mortality, windthrow hazard, wetness

Building site development
Major management concerns: Au Gres—cutbanks caving, seasonal wetness; Kinross—seedling mortality, windthrow hazard, wetness

Septic tank absorption fields
Major management concerns: Au Gres—poor filtering capacity, wetness; Kinross—poor filtering capacity, ponding, wetness

Interpretive Groups

Land capability classification: Au Gres—4w; Kinross—6w
Michigan soil management group: Au Gres—5b; Kinross—5c-a
Prime farmland category: Not prime farmland
Hydric soil status: Au Gres—not hydric; Kinross—hydric
Forest habitat type: Au Gres—TMC-Vac; Kinross—TTS, PCS

130C—Garlic-Alcona complex, dissected, 1 to 12 percent slopes

Setting

Landform: Ridges, knolls, and hillslopes on till-floored lake plains and stream terraces

Map Unit Composition

Major components:
Garlic, dissected, and similar soils: 45 to 75 percent
Alcona, dissected, and similar soils: 25 to 40 percent

Minor components:
Borgstrom and similar soils (0 to 10 percent of the map unit) in the slightly lower landscape positions

Ingalls and similar soils (0 to 8 percent of the map unit) in depressions and drainageways

Typical Profile

Garlic

Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Alcona

Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 4 inches; reddish gray very fine sandy loam
Bhs—4 to 7 inches; dark reddish brown very fine sandy loam
Bs—7 to 29 inches; brown very fine sandy loam
B/E—29 to 40 inches; dark reddish brown very fine sandy loam and reddish brown loamy very fine sand
C1—40 to 46 inches; reddish brown very fine sandy loam, loamy very fine sand, and fine sand
2C2—46 to 69 inches; reddish brown, stratified fine sand to loamy fine sand
2C3—69 to 80 inches; reddish brown fine sand

Soil Properties and Qualities

Parent material: Garlic—sandy glaciofluvial and glaciolacustrine deposits; Alcona—coarse-loamy glaciofluvial and glaciolacustrine deposits
Slope: 1 to 12 percent
Surface runoff class: Garlic—very low; Alcona—medium
Potential for frost action: Garlic—low; Alcona—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Garlic—about 4.4 inches to a depth of 60 inches; Alcona—about 8.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Garlic—rapid; Alcona—moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland

Major management concerns: Garlic—seedling mortality; Alcona—seedling mortality, soil rutting

Building site development

Major management concerns: Garlic—surface stones, surface boulders, cutbanks caving, slope; Alcona—cutbanks caving, slope

Septic tank absorption fields

Major management concerns: Garlic—slope, poor filtering capacity; Alcona—surface stones, surface boulders, slope

Interpretive Groups

Land capability classification: Garlic—6s; Alcona—3e
Michigan soil management group: Garlic—5.3a; Alcona—3a-s
Prime farmland category: Not prime farmland
Hydric soil status: Garlic—not hydric; Alcona—not hydric
Forest habitat type: Garlic—ATD-D; Alcona—ATD

130E—Garlic-Alcona complex, dissected, 8 to 35 percent slopes

Setting

Landform: Ridges, knolls, and hillslopes on stream terraces and till-floored plains

Map Unit Composition

Major components:
Garlic, dissected, and similar soils: 50 to 70 percent
Alcona, dissected, and similar soils: 20 to 45 percent

Minor components:
Borgstrom and similar soils (0 to 10 percent of the map unit) in the slightly lower landscape positions
Waiska and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the major soils

Typical Profile

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Alcona
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 4 inches; reddish gray very fine sandy loam
Bhs—4 to 7 inches; dark reddish brown very fine sandy loam
Bs—7 to 29 inches; brown very fine sandy loam
B/E—29 to 40 inches; dark reddish brown very fine sandy loam and reddish brown loamy very fine sand
C—40 to 46 inches; reddish brown very fine sandy loam, loamy very fine sand, and fine sand
2C1—46 to 69 inches; reddish brown, stratified fine sand to loamy fine sand
2C2—69 to 80 inches; reddish brown fine sand

Soil Properties and Qualities

Parent material: Garlic—sandy glaciofluvial deposits and glaciolacustrine deposits; Alcona—coarse-loamy glaciofluvial and glaciolacustrine deposits
Slope: 8 to 35 percent
Surface runoff class: Garlic—low; Alcona—high
Potential for frost action: Garlic—low; Alcona—moderate
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Available water capacity: Garlic—about 4.4 inches to a depth of 60 inches; Alcona—about 8.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Garlic—rapid; Alcona—moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Garlic—erosion, seedling mortality, slope, dissected slopes; Alcona—erosion, seedling mortality, soil rutting, slope, dissected slopes

Building site development
Major management concerns: Garlic—cutbanks caving, slope; Alcona—slope

Septic tank absorption fields
Major management concerns: Garlic—slope, poor filtering capacity; Alcona—slope

Interpretive Groups

Land capability classification: Garlic—7s; Alcona—6e
Michigan soil management group: Garlic—5.3a; Alcona—3a-s
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: Garlic—ATD-D; Alcona—ATD

133C—Keweenaw-Garlic complex, 1 to 12 percent slopes

Setting

Landform: Knolls and ridges on outwash plains and hillslopes; knolls and ridges on ground moraines

Map Unit Composition

Major components:
Keweenaw, dissected, and similar soils: 40 to 60 percent
Garlic, dissected, and similar soils: 20 to 40 percent

Minor components:
Waiska and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the major soils
Yalmer and similar soils (0 to 7 percent of the map unit) in the slightly lower landscape positions
Borgstrom and similar soils (0 to 3 percent of the map unit) in the slightly lower landscape positions

Typical Profile

Keweenaw
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 11 inches; reddish gray loamy sand

Bhs—11 to 17 inches; dark reddish brown loamy sand
Bs—17 to 39 inches; dark brown and brown loamy sand
B/E—39 to 61 inches; reddish brown fine sandy loam and loamy sand
E and B—61 to 80 inches; reddish brown loamy sand and fine sandy loam

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Keweenaw—sandy drift; Garlic—sandy glaciofluvial deposits sandy glaciolacustrine deposits
Slope: 1 to 12 percent
Surface runoff class: Keweenaw—medium; Garlic—low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Keweenaw—about 5.3 inches to a depth of 60 inches; Garlic—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Keweenaw—moderately rapid; Garlic—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Keweenaw—slope; Garlic—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Keweenaw—slope; Garlic—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Keweenaw—3e; Garlic—6s
Michigan soil management group: Keweenaw—4a-a; Garlic—5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Keweenaw—not hydric; Garlic—not hydric
Forest habitat type: Keweenaw—ATD-D, TM; Garlic—TM, ATD

133E—Keweenaw-Garlic complex, 8 to 35 percent slopes

Setting

Landform: Ridges, knolls, and hillslopes on outwash plains, terraces, and moraines

Map Unit Composition

Major components:
Keweenaw, dissected, and similar soils: 40 to 60 percent
Garlic, dissected, and similar soils: 20 to 40 percent

Minor components:
Waiska and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the major soils
Yalmer and similar soils (0 to 7 percent of the map unit) in the slightly lower landscape positions
Borgstrom and similar soils (0 to 3 percent of the map unit) in the slightly lower landscape positions

Typical Profile

Keweenaw
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 11 inches; reddish gray loamy sand
Bhs—11 to 17 inches; dark reddish brown loamy sand
Bs—17 to 39 inches; dark brown and brown loamy sand
B/E—39 to 61 inches; reddish brown fine sandy loam and loamy sand
E and B—61 to 80 inches; reddish brown loamy sand and fine sandy loam

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Keweenaw—sandy drift; Garlic—sandy glaciofluvial and glaciolacustrine deposits
Slope: 8 to 35 percent
Surface runoff class: Keweenaw—high; Garlic—low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Keweenaw—about 5.3 inches to a depth of 60 inches; Garlic—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Keweenaw—moderately rapid; Garlic—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Erosion, seedling mortality, slope

Building site development
Major management concerns: Keweenaw—slope; Garlic—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Keweenaw—surface stones, surface boulders, slope; Garlic—surface stones, surface boulders, slope, poor filtering capacity

Interpretive Groups

Land capability classification: Keweenaw—7e; Garlic—7s
Michigan soil management group: Keweenaw—4a-a; Garlic—5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Keweenaw—not hydric; Garlic—not hydric
Forest habitat type: Keweenaw—ATD-D, TM; Garlic—ATD-D, TM

133F—Keweenaw-Garlic complex, 15 to 60 percent slopes

Setting

Landform: Knolls, ridges, and hillslopes on ground moraines

Map Unit Composition

Major components:
Keweenaw, dissected, and similar soils: 40 to 60 percent
Garlic, dissected, and similar soils: 20 to 40 percent

Minor components:
Waiska and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the major soils
Yalmer and similar soils (0 to 7 percent of the map unit) in the slightly lower landscape positions
Borgstrom and similar soils (0 to 3 percent of the map unit) in the slightly lower landscape positions

Typical Profile

Keweenaw
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 11 inches; reddish gray loamy sand
Bhs—11 to 17 inches; dark reddish brown loamy sand
Bs—17 to 39 inches; dark brown and brown loamy sand
B/E—39 to 61 inches; reddish brown fine sandy loam and loamy sand
E and B—61 to 80 inches; reddish brown loamy sand and fine sandy loam

Garlic
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown loamy fine sand
Bhs—7 to 13 inches; dark brown fine sand
Bs1—13 to 20 inches; dark brown fine sand
Bs2—20 to 27 inches; brown sand
BC—27 to 46 inches; brown sand
C—46 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Keweenaw—sandy drift; Garlic—sandy glaciofluvial and glaciolacustrine deposits
Slope: 15 to 60 percent
Surface runoff class: Keweenaw—high; Garlic—low
Potential for frost action: Low

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Keweenaw—about 5.3 inches to a depth of 60 inches; Garlic—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Keweenaw—moderately rapid; Garlic—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Erosion, seedling mortality, slope

Building site development
Major management concerns: Keweenaw—slope; Garlic—cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Keweenaw—slope; Garlic—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Keweenaw—7e; Garlic—7s
Michigan soil management group: Keweenaw—4a-a; Garlic—5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Keweenaw—not hydric; Garlic—not hydric
Forest habitat type: Keweenaw—TM, ATD-D; Garlic—ATD

136B—Borgstrom-Ingalls complex, 0 to 6 percent slopes

Setting

Landform: Knolls and ridges on lake plains, stream terraces, and outwash plains

Map Unit Composition

Major components:
- Borgstrom and similar soils: 50 to 70 percent
- Ingalls and similar soils: 25 to 50 percent

Minor components:
- Deford and similar soils (0 to 8 percent of the map unit) in depressions and drainageways
- Garlic and similar soils (0 to 6 percent of the map unit) in the slightly higher landscape positions
- Alcona and similar soils (0 to 5 percent of the map unit) in the slightly higher landscape positions

Typical Profile

Borgstrom
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 8 inches; brown fine sand
Bhsm—8 to 11 inches; dark brown fine sand
Bsm—11 to 18 inches; dark brown fine sand

Bs—18 to 21 inches; brown fine sand
BC—21 to 24 inches; dark yellowish brown fine sand
2C—24 to 80 inches; dark reddish brown and reddish brown, stratified loamy fine sand to loamy very fine sand to fine sand to very fine sandy loam to silt loam

Ingalls
Oa—0 to 4 inches; black, highly decomposed plant material
A—4 to 5 inches; very dark brown sand
E—5 to 14 inches; reddish gray loamy sand
Bhs—14 to 16 inches; dark reddish brown loamy sand
Bs—16 to 35 inches; reddish brown fine sand
2C—35 to 80 inches; light reddish brown silt loam, loamy fine sand, and loamy very fine sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits over loamy glaciolacustrine deposits
Slope: Borgstrom—0 to 6 percent; Ingalls—0 to 4 percent
Surface runoff class: Low
Potential for frost action: Borgstrom—low; Ingalls—moderate
Depth to restrictive feature: Borgstrom—8 to 18 inches to ortstein; Ingalls—more than 80 inches
Drainage class: Borgstrom—moderately well drained; Ingalls—somewhat poorly drained
Available water capacity: Borgstrom—about 6.4 inches to a depth of 60 inches; Ingalls—about 9.1 inches to a depth of 60 inches
Shrink-swell potential: Borgstrom—low; Ingalls—moderate
Permeability: Borgstrom—rapid over moderately rapid over moderately slow; Ingalls—rapid over moderately slow
Flooding: None
Depth to seasonal high water table: Borgstrom—2.0 to 6.7 feet (April, May); Ingalls—0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Borgstrom—seedling mortality; Ingalls—seedling mortality, windthrow hazard, seasonal wetness

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

Septic tank absorption fields
Major management concerns: Borgstrom—poor filtering capacity, depth to a restrictive feature, seasonal wetness; Ingalls—poor filtering capacity, restricted permeability, wetness

Interpretive Groups

Land capability classification: Borgstrom—6s; Ingalls—3w
Michigan soil management group: Borgstrom—4/2a-hs; Ingalls—4/2b
Prime farmland category: Not prime farmland
Hydric soil status: Borgstrom—not hydric; Ingalls—not hydric
Forest habitat type: Borgstrom—TM; Ingalls—TMC

142C—Wallace-Rubicon complex, 1 to 12 percent slopes

Setting

Landform: Dunes and beach ridges on dune fields and lakeshore complexes

Map Unit Composition

Major components:
Wallace and similar soils: 40 to 75 percent
Rubicon and similar soils: 15 to 40 percent

Minor components:
Croswell and similar soils (0 to 10 percent of the map unit) in the lower landscape positions
Au Gres and similar soils (0 to 6 percent of the map unit) in depressions and drainageways

Typical Profile

Wallace
Oa—0 to 4 inches; reddish black and very dusky red, highly decomposed plant material
A—4 to 5 inches; black sand
E—5 to 22 inches; pinkish gray and light brown sand
Bhsm—22 to 31 inches; dark reddish brown sand
Bsm—31 to 37 inches; brown sand
Bs—37 to 62 inches; strong brown sand
BC—62 to 74 inches; dark yellowish brown sand
C—74 to 80 inches; yellowish brown sand

Rubicon
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown sand
Bs—7 to 34 inches; dark brown sand
BC—34 to 44 inches; brown sand
C—44 to 80 inches; light brown sand

Soil Properties and Qualities

Parent material: Wallace—eolian sands and sandy glaciolacustrine deposits; Rubicon—sandy glaciolacustrine and eolian deposits
Slope: 1 to 12 percent
Surface runoff class: Wallace—low; Rubicon—very low
Potential for frost action: Low
Depth to restrictive feature: Wallace—18 to 25 inches to ortstein; Rubicon—more than 80 inches
Drainage class: Wallace—well drained; Rubicon—excessively drained
Available water capacity: Wallace—about 5.4 inches to a depth of 60 inches; Rubicon—about 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Wallace—moderately rapid over rapid; Rubicon—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Wallace—seedling mortality, windthrow hazard; Rubicon—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Wallace—slope, poor filtering capacity, depth to a restrictive feature; Rubicon—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Wallace—6s; Rubicon—7s
Michigan soil management group: Wallace—5a-h; Rubicon—5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Wallace—not hydric; Rubicon—not hydric
Forest habitat type: Wallace—TMC; Rubicon—AQVac, TMC

142F—Wallace-Rubicon complex, 12 to 50 percent slopes

Setting

Landform: Dunes and beach ridges on dune fields and shoreline complexes

Map Unit Composition

Major components:
Wallace and similar soils: 45 to 75 percent
Rubicon and similar soils: 20 to 45 percent

Minor components:
Croswell and similar soils (0 to 5 percent of the map unit) in the lower landscape positions

Typical Profile

Wallace
Oa—0 to 4 inches; reddish black and very dusky red, highly decomposed plant material
A—4 to 5 inches; black sand
E—5 to 22 inches; pinkish gray and light brown sand
Bhsm—22 to 31 inches; dark reddish brown sand
Bsm—31 to 37 inches; brown sand
Bs—37 to 62 inches; strong brown sand
BC—62 to 74 inches; dark yellowish brown sand
C—74 to 80 inches; yellowish brown sand

Rubicon
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 7 inches; brown sand
Bs—7 to 34 inches; dark brown sand
BC—34 to 44 inches; brown sand
C—44 to 80 inches; light brown sand

Soil Properties and Qualities

Parent material: Wallace—eolian sands and sandy glaciolacustrine deposits; Rubicon—sandy glaciolacustrine and eolian deposits
Slope: 12 to 50 percent

Surface runoff class: Wallace—medium; Rubicon—low
Potential for frost action: Low
Depth to restrictive feature: Wallace—18 to 25 inches to ortstein; Rubicon—more than 80 inches
Drainage class: Wallace—well drained; Rubicon—excessively drained
Available water capacity: Wallace—about 5.4 inches to a depth of 60 inches; Rubicon—about 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Wallace—moderately rapid over rapid; Rubicon—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Wallace—erosion, seedling mortality, windthrow hazard, slope; Rubicon—erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Wallace—slope, poor filtering capacity, depth to a restrictive feature; Rubicon—slope, poor filtering capacity

Interpretive Groups

Land capability classification: Wallace—7s; Rubicon—7s
Michigan soil management group: Wallace—5a-h; Rubicon—5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Wallace—not hydric; Rubicon—not hydric
Forest habitat type: Wallace—TMC; Rubicon—AQVac, TMC

155C—Montreal-Paavola-Waiska complex, dissected, 1 to 12 percent slopes, rocky, very bouldery

Setting

Landform: Hillslopes, ridges, and knolls on moraines

Map Unit Composition

Major components:
Montreal and similar soils: 35 to 50 percent
Paavola and similar soils: 25 to 35 percent
Waiska and similar soils: 10 to 25 percent

Minor components:
Gratiot, rocky, very bouldery, and similar soils (0 to 10 percent of the map unit) in depressions and drainageways
Dishno, dissected, very rocky, very bouldery, and similar soils (0 to 4 percent of the map unit) in landscape positions similar to those of the Montreal soil
Garlic, dissected, and similar soils (0 to 3 percent of the map unit) in landscape positions similar to those of the Waiska soil

Typical Profile

Montreal
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly fine sandy loam
Bhs—6 to 11 inches; dark brown cobbly fine sandy loam
Bs—11 to 20 inches; dark brown cobbly fine sandy loam
E/Bx—20 to 33 inches; brown very cobbly loamy fine sand and reddish brown very cobbly fine sandy loam
B/Ex—33 to 51 inches; reddish brown very cobbly fine sandy loam and very cobbly loamy fine sand
E/B—51 to 80 inches; light brown cobbly loamy fine sand and reddish brown cobbly fine sandy loam

Paavola
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly loamy sand
Bhs—6 to 12 inches; dark brown cobbly loamy sand
Bs—12 to 27 inches; brown very gravelly sand
2E/Bx—27 to 35 inches; brown very gravelly loamy fine sand and brown gravelly fine sandy loam
2Btx—35 to 46 inches; reddish brown gravelly fine sandy loam
2C—46 to 80 inches; reddish brown gravelly sandy loam

Waiska
Oi—0 to 1 inch; dark reddish brown, moderately decomposed plant material
E—1 to 7 inches; brown cobbly loamy sand
Bhs—7 to 23 inches; dark brown very gravelly loamy sand
Bs—23 to 35 inches; dark brown extremely gravelly coarse sand
BC—35 to 60 inches; dark brown extremely gravelly coarse sand
C—60 to 80 inches; brown extremely gravelly coarse sand

Soil Properties and Qualities

Parent material: Montreal—coarse-loamy eolian deposits over coarse-loamy or sandy till deposits; Paavola—sandy-skeletal drift over loamy or sandy till deposits; Waiska—sandy-skeletal glaciofluvial and glaciolacustrine deposits
Slope: 1 to 12 percent
Surface runoff class: Montreal—high; Waiska and Paavola—very low
Potential for frost action: Montreal—moderate; Paavola and Waiska—low
Depth to restrictive feature: Montreal—14 to 41 inches to a fragipan; Paavola—20 to 30 inches to bedrock (lithic); Waiska—more than 80 inches
Drainage class: Montreal and Paavola—moderately well drained; Waiska—excessively drained
Available water capacity: Montreal and Paavola—about 4.6 inches to a depth of 60 inches; Waiska—about 2.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Montreal—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Paavola—very rapid in the upper part and very slow in the fragipan; Waiska—very rapid
Flooding: None
Depth to seasonal high water table: Montreal—1.0 to 1.7 feet (April); Paavola—1.0 to 2.6 feet (April); Waiska—more than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland

Major management concerns: Montreal—surface boulders, rock fragments, seedling mortality, soil rutting, windthrow hazard, seasonal wetness; Paavola—surface boulders, rock fragments, seedling mortality, soil rutting, windthrow hazard, depth to bedrock, seasonal wetness; Waiska—surface boulders, rock fragments, seedling mortality

Building site development

Major management concerns: Montreal—surface stones, surface boulders, cutbanks caving, slope, seasonal wetness; Paavola—surface stones, surface boulders, cutbanks caving, depth to bedrock, slope, seasonal wetness; Waiska—surface stones, surface boulders, cutbanks caving, slope

Septic tank absorption fields

Major management concerns: Montreal—surface stones, surface boulders, slope, restricted permeability, depth to a fragipan, wetness; Paavola—surface stones, surface boulders, slope, poor filtering capacity, restricted permeability, depth to bedrock, wetness; Waiska—surface stones, surface boulders, slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Montreal—3a-af; Paavola—Ga; Waiska—Ga
Prime farmland category: Not prime farmland
Hydric soil status: Montreal—not hydric; Paavola—not hydric; Waiska—not hydric
Forest habitat type: Montreal and Waiska—ATD, AVO; Paavola—AVO, ATD

155E—Montreal-Paavola-Waiska complex, dissected, 8 to 35 percent slopes, rocky, very bouldery

Setting

Landform: Ridges, knolls, and hillslopes on moraines

Map Unit Composition

Major components:
Montreal and similar soils: 35 to 50 percent
Paavola and similar soils: 25 to 35 percent
Waiska and similar soils: 10 to 25 percent

Minor components:
Dishno, dissected, very rocky, very bouldery, and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Montreal soil
Garlic, dissected, and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Waiska soil
Michigamme, extremely bouldery, and similar soils (0 to 5 percent of the map unit) in the higher landscape positions

Typical Profile

Montreal
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly fine sandy loam
Bhs—6 to 11 inches; dark brown cobbly fine sandy loam
Bs—11 to 20 inches; dark brown cobbly fine sandy loam

E/Bx—20 to 33 inches; brown very cobbly loamy fine sand and reddish brown very cobbly fine sandy loam
B/Ex—33 to 51 inches; reddish brown very cobbly fine sandy loam and very cobbly loamy fine sand
E/B—51 to 80 inches; light brown cobbly loamy fine sand and reddish brown cobbly fine sandy loam

Paavola
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly loamy sand
Bhs—6 to 12 inches; dark brown cobbly loamy sand
Bs—12 to 27 inches; brown very gravelly sand
2E/Bx—27 to 35 inches; brown very gravelly loamy fine sand and brown gravelly fine sandy loam
2Btx—35 to 46 inches; reddish brown gravelly fine sandy loam
2C—46 to 80 inches; reddish brown gravelly sandy loam

Waiska
Oi—0 to 1 inch; dark reddish brown, moderately decomposed plant material
E—1 to 7 inches; brown cobbly loamy sand
Bhs—7 to 23 inches; dark brown very gravelly loamy sand
Bs—23 to 35 inches; dark brown extremely gravelly coarse sand
BC—35 to 60 inches; dark brown extremely gravelly coarse sand
C—60 to 80 inches; brown extremely gravelly coarse sand

Soil Properties and Qualities

Parent material: Montreal—coarse-loamy eolian deposits over coarse-loamy or sandy till deposits; Paavola and Waiska—sandy-skeletal drift over loamy or sandy till deposits
Slope: 8 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: Montreal—14 to 41 inches to a fragipan; Paavola—20 to 30 inches to a fragipan; Waiska—more than 80 inches
Drainage class: Montreal and Paavola—moderately well drained; Waiska—excessively drained
Available water capacity: Montreal and Paavola—about 4.6 inches to a depth of 60 inches; Waiska—about 2.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Montreal—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Paavola—very rapid in the upper part and very slow in the fragipan; Waiska—very rapid
Flooding: None
Depth to seasonal high water table: Montreal—1.0 to 1.7 feet (April); Paavola—1.0 to 2.6 feet (April); Waiska—more than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Montreal and Paavola—erosion, surface boulders, rock fragments, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness, dissected slopes; Waiska—erosion, surface boulders, rock fragments, seedling mortality, slope, dissected slopes

Building site development

Major management concerns: Montreal and Paavola—surface stones, surface boulders, cutbanks caving, slope, seasonal wetness; Waiska—surface stones, surface boulders, cutbanks caving, slope

Septic tank absorption fields

Major management concerns: Montreal—surface stones, surface boulders, slope, restricted permeability, depth to a fragipan, wetness; Paavola—surface stones, surface boulders, slope, poor filtering capacity, restricted permeability, depth to a fragipan, wetness; Waiska—surface stones, surface boulders, slope, poor filtering capacity

Interpretive Groups

Land capability classification: Montreal—7e; Paavola—7e; Waiska—7s
Michigan soil management group: Montreal—3a-af; Paavola and Waiska—Ga
Prime farmland category: Not prime farmland
Hydric soil status: Montreal—not hydric; Paavola—not hydric; Waiska—not hydric
Forest habitat type: Montreal and Waiska—AVO, ATD; Paavola—ATD, AVO

158A—Arnheim-Sturgeon-Pelkie complex, 0 to 3 percent slopes

Setting

Landform: Oxbow lakes and backswales on flood plains

Map Unit Composition

Major components:
Arnheim and similar soils: 35 to 50 percent
Sturgeon and similar soils: 25 to 35 percent
Pelkie and similar soils: 10 to 25 percent

Minor components:
Tawas and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Arnheim soil
Ingalls and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Sturgeon soil
Deford and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Arnheim soil

Typical Profile

Arnheim

A—0 to 4 inches; dark reddish brown mucky very fine sandy loam
Cg—4 to 9 inches; dark reddish gray very fine sandy loam
C1—9 to 22 inches; dark reddish gray silt loam
C2—22 to 35 inches; reddish brown, stratified very fine sandy loam to fine sandy loam to silt loam
2C3—35 to 50 inches; dark reddish gray fine sandy loam
2C4—50 to 60 inches; reddish brown loamy sand

Sturgeon

Oa—0 to 2 inches; black, highly decomposed plant material
Cg1—2 to 16 inches; brown silt loam

Cg2—16 to 42 inches; brown loamy sand, loamy fine sand, and loamy very fine sand
Cg3—42 to 48 inches; brown fine sandy loam
Cg4—48 to 60 inches; brown loamy sand

Pelkie
A—0 to 6 inches; dark brown loamy fine sand
C1—6 to 22 inches; brown loamy fine sand
C2—22 to 80 inches; brown loamy fine sand

Soil Properties and Qualities

Parent material: Arnheim—loamy alluvium; Sturgeon—coarse-silty alluvium over sandy alluvium; Pelkie—sandy alluvium
Slope: Arnheim and Sturgeon—0 to 1 percent; Pelkie—0 to 3 percent
Surface runoff class: Arnheim and Pelkie—negligible; Sturgeon—low
Potential for frost action: Arnheim and Sturgeon—high; Pelkie—low
Depth to restrictive feature: More than 80 inches
Drainage class: Arnheim—poorly drained; Sturgeon—somewhat poorly drained; Pelkie—moderately well drained
Available water capacity: Arnheim—about 10.1 inches to a depth of 60 inches; Sturgeon—about 8.5 inches to a depth of 60 inches; Pelkie—about 6.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Arnheim—moderate; Sturgeon—moderate over rapid; Pelkie—rapid
Frequency and most likely period of flooding: Arnheim—frequent (March, April, May); Sturgeon and Pelkie—occasional (March, April, May)
Depth to seasonal high water table: Arnheim—at the surface (January, February, March, April, May, November, December); Sturgeon—0.5 foot to 6.7 feet (April, May); Pelkie—2.0 to 6.7 feet (April, May)
Ponding depth: Arnheim—0.2 foot all year; Sturgeon and Pelkie—none

Use and Management

Land use: Major use—wildlife habitat; other use—woodland

Woodland
Major management concerns: Arnheim—seedling mortality, soil rutting, windthrow hazard, seasonal wetness, flooding; Sturgeon—seedling mortality, soil rutting, windthrow hazard, flooding; Pelkie—seedling mortality, flooding

Building site development
Major management concerns: Arnheim—cutbanks caving, ponding, flooding, wetness; Sturgeon—cutbanks caving, flooding, seasonal wetness; Pelkie—cutbanks caving, flooding, seasonal wetness

Septic tank absorption fields
Major management concerns: Arnheim—flooding; Sturgeon—poor filtering capacity, flooding; Pelkie—poor filtering capacity, flooding, seasonal wetness

Interpretive Groups

Land capability classification: Arnheim—5w; Sturgeon—3w; Pelkie—4s
Michigan soil management group: Arnheim—L-2c; Sturgeon—L-2b; Pelkie—L-2a
Prime farmland category: Not prime farmland
Hydric soil status: Arnheim—hydric; Sturgeon and Pelkie—not hydric
Forest habitat type: Arnheim—FMC, FI; Sturgeon—AVO-CI; Pelkie—AVO

161F—Trimountain-Lac La Belle-Waiska complex, dissected, 15 to 60 percent slopes, rocky, very bouldery

Setting

Landform: Hills, hillslopes, and ridges on moraines

Map Unit Composition

Major components:
- Trimountain, dissected, rocky, very bouldery, and similar soils: 35 to 50 percent
- Lac La Belle, dissected, rocky, very bouldery, and similar soils: 25 to 35 percent
- Waiska, dissected, rocky, very bouldery, and similar soils: 10 to 25 percent

Minor components:
- Montreal and similar soils (0 to 9 percent of the map unit) in the slightly lower landscape positions
- Paavola and similar soils (0 to 7 percent of the map unit) in the slightly lower landscape positions
- Keweenaw and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Waiska soil

Typical Profile

Trimountain
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly very fine sandy loam
Bhs—6 to 11 inches; dark brown cobbly very fine sandy loam
Bs—11 to 20 inches; dark brown cobbly very fine sandy loam
2E/Bx—20 to 33 inches; brown very cobbly loamy fine sand and reddish brown very cobbly fine sandy loam
2B/Ex—33 to 51 inches; reddish brown very cobbly fine sandy loam and reddish brown very cobbly loamy fine sand
2E/B—51 to 80 inches; light brown cobbly loamy fine sand and reddish brown cobbly fine sandy loam

Lac La Belle
Oa—0 to 1 inch; reddish black, highly decomposed plant material
E—1 to 5 inches; reddish gray very stony loamy sand
Bhs—5 to 12 inches; dark reddish brown extremely stony loamy sand
Bs—12 to 36 inches; dark reddish brown and brown extremely cobbly loamy sand
2E/Bx—36 to 42 inches; brown very cobbly loamy sand and brown very cobbly sandy loam
2Btx—42 to 50 inches; reddish brown very cobbly loamy sand
2B/Ex—50 to 62 inches; reddish brown very cobbly sandy loam and brown very cobbly loamy sand
2C—62 to 80 inches; reddish brown very cobbly loamy sand

Waiska
Oi—0 to 1 inch; dark reddish brown, moderately decomposed plant material
E—1 to 7 inches; brown cobbly loamy sand
Bhs—7 to 23 inches; dark brown very gravelly loamy sand
Bs—23 to 35 inches; dark brown extremely gravelly coarse sand

BC—35 to 60 inches; dark brown extremely gravelly coarse sand
C—60 to 80 inches; brown extremely gravelly coarse sand

Soil Properties and Qualities

Parent material: Trimountain—coarse-loamy eolian deposits over coarse-loamy or sandy till deposits; Lac La Belle—cobbly and gravelly drift over loamy or sandy till deposits; Waiska—sandy-skeletal glaciofluvial and glaciolacustrine deposits
Slope: 15 to 60 percent
Surface runoff class: Trimountain and Lac La Belle—high; Waiska—low
Potential for frost action: Trimountain—moderate; Lac La Belle—high; Waiska—low
Depth to restrictive feature: Trimountain—16 to 28 inches to a fragipan; Lac La Belle—25 to 40 inches to a fragipan; Waiska—more than 80 inches
Drainage class: Trimountain and Lac La Belle—well drained; Waiska—excessively drained
Available water capacity: Trimountain—about 4.6 inches to a depth of 60 inches; Lac La Belle—about 2.9 inches to a depth of 60 inches; Waiska—about 2.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Trimountain—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Lac La Belle—rapid in the upper part, very slow in the fragipan, and moderately rapid in the lower part; Waiska—very rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Trimountain—erosion, surface boulders, rock fragments, seedling mortality, windthrow hazard, slope, dissected slopes; Lac La Belle and Waiska—erosion, surface boulders, rock fragments, seedling mortality, slope, dissected slopes

Building site development
Major management concerns: Surface stones, surface boulders, cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Trimountain—surface stones, surface boulders, slope, restricted permeability, depth to a fragipan; Lac La Belle—surface stones, surface boulders, slope, poor filtering capacity, restricted permeability, depth to a fragipan; Waiska—surface stones, surface boulders, slope, poor filtering capacity

Interpretive Groups

Land capability classification: Trimountain—7e; Lac La Belle—7s; Waiska—7s
Michigan soil management group: Trimountain—3a-af; Lac La Belle and Waiska—Ga
Prime farmland category: Not prime farmland
Hydric soil status: Trimountain—not hydric; Lac La Belle—not hydric; Waiska—not hydric
Forest habitat type: Trimountain and Waiska—AVO, ATD; Lac La Belle—ATD, AVO

162F—Trimountain-Lac La Belle-Michigamme complex, dissected, 15 to 60 percent slopes, very rocky, extremely bouldery

Setting

Landform: Hills, ridges, and hillslopes on moraines

Map Unit Composition

Major components:

Trimountain, dissected, very rocky, extremely bouldery, and similar soils: 45 to 55 percent

Lac La Belle, dissected, very rocky, extremely bouldery, and similar soils: 15 to 35 percent

Michigamme, dissected, very rocky, extremely bouldery, and similar soils: 10 to 20 percent

Minor components:

Arcadian and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Michigamme soil

Montreal and similar soils (0 to 7 percent of the map unit) in the slightly lower landscape positions

Paavola and similar soils (0 to 4 percent of the map unit) in the slightly lower landscape positions

Typical Profile

Trimountain

Oa—0 to 2 inches; black, highly decomposed plant material

E—2 to 6 inches; brown cobbly very fine sandy loam

Bhs—6 to 11 inches; dark brown cobbly very fine sandy loam

Bs—11 to 20 inches; dark brown cobbly very fine sandy loam

2E/Bx—20 to 33 inches; brown very cobbly loamy fine sand and reddish brown very cobbly fine sandy loam

2B/Ex—33 to 51 inches; reddish brown very cobbly fine sandy loam and reddish brown very cobbly loamy fine sand

2E/B—51 to 80 inches; light brown cobbly loamy fine sand and reddish brown cobbly fine sandy loam

Lac La Belle

Oa—0 to 1 inch; reddish black, highly decomposed plant material

E—1 to 5 inches; reddish gray very stony loamy sand

Bhs—5 to 12 inches; dark reddish brown extremely stony loamy sand

Bs—12 to 36 inches; dark reddish brown and brown extremely cobbly loamy sand

2E/Bx—36 to 42 inches; brown very cobbly loamy sand and brown very cobbly sandy loam

2Btx—42 to 50 inches; reddish brown very cobbly loamy sand

2B/Ex—50 to 62 inches; reddish brown very cobbly sandy loam and brown very cobbly loamy sand

2C—62 to 80 inches; reddish brown very cobbly loamy sand

Michigamme

Oa—0 to 1 inch; black, highly decomposed plant material

E—1 to 4 inches; dark reddish gray cobbly very fine sandy loam

Bhs—4 to 10 inches; dark brown cobbly very fine sandy loam

Bs—10 to 22 inches; dark brown and brown very cobbly very fine sandy loam

2B/E—22 to 30 inches; brown cobbly loamy sand and bouldery loamy sand
3R—30 inches; unweathered basalt bedrock

Soil Properties and Qualities

Parent material: Trimountain—coarse-loamy eolian deposits over coarse-loamy or sandy till deposits; Lac La Belle—cobbly and gravelly drift over loamy or sandy till deposits; Michigamme—coarse-loamy glacial till over loamy glacial till over igneous or metamorphic bedrock
Slope: 15 to 60 percent
Surface runoff class: Trimountain and Lac La Belle—high; Michigamme—medium
Potential for frost action: Trimountain—moderate; Lac La Belle—low; Michigamme—moderate
Depth to restrictive feature: Trimountain—16 to 28 inches to a fragipan; Lac La Belle—25 to 40 inches to a fragipan; Michigamme—22 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Available water capacity: Trimountain—about 4.6 inches to a depth of 60 inches; Lac La Belle—about 2.9 inches to a depth of 60 inches; Michigamme—about 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Trimountain—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Lac La Belle—rapid in the upper part, very slow in the fragipan, and moderately rapid in the lower part; Michigamme—moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Trimountain—erosion, surface boulders, rock fragments, seedling mortality, windthrow hazard, slope, dissected slopes; Lac La Belle—erosion, surface boulders, rock fragments, seedling mortality, slope, dissected slopes; Michigamme—erosion, surface boulders, rock fragments, clayey textures, seedling mortality, soil rutting, slope, dissected slopes

Building site development
Major management concerns: Trimountain and Lac La Belle—surface stones, surface boulders, slope; Michigamme—surface stones, surface boulders, depth to bedrock, slope

Septic tank absorption fields
Major management concerns: Trimountain—surface stones, surface boulders, slope, restricted permeability, depth to a fragipan; Lac La Belle—surface stones, surface boulders, slope, poor filtering capacity, restricted permeability, depth to a fragipan; Michigamme—surface stones, surface boulders, slope, restricted permeability, depth to bedrock

Interpretive Groups

Land capability classification: Trimountain—7e; Lac La Belle—7s; Michigamme—7e
Michigan soil management group: Trimountain—3a-af; Lac La Belle—Ga; Michigamme—3/Ra
Prime farmland category: Not prime farmland
Hydric soil status: Trimountain—not hydric; Lac La Belle—not hydric; Michigamme—not hydric
Forest habitat type: Trimountain, Lac La Belle, and Michigamme—ATD, AVO

166B—Gratiot-Sabattis complex, 0 to 4 percent slopes, rocky, very bouldery

Setting

Landform: Depressions, drainageways, and knolls on moraines

Map Unit Composition

Major components:
Gratiot, rocky, very bouldery, and similar soils: 50 to 60 percent
Sabattis, rocky, very bouldery, and similar soils: 30 to 40 percent

Minor components:
Dishno and similar soils (0 to 8 percent of the map unit) in the higher landscape positions
Montreal and similar soils (0 to 6 percent of the map unit) in the higher landscape positions
Paavola and similar soils (0 to 4 percent of the map unit) in the higher landscape positions

Typical Profile

Gratiot
Oa—0 to 1 inch; dark reddish brown, highly decomposed plant material
A—1 to 4 inches; black very cobbly fine sandy loam
Bhs—4 to 7 inches; dark reddish brown very cobbly loamy sand
Bs1—7 to 12 inches; dark reddish brown very cobbly loamy sand
Bs2—12 to 20 inches; reddish brown very cobbly fine sandy loam
B/Ex—20 to 30 inches; reddish brown cobbly fine sandy loam and cobbly loamy fine sand
C—30 to 80 inches; reddish brown cobbly fine sandy loam

Sabattis
Oa—0 to 8 inches; black muck
A—8 to 12 inches; black very cobbly very fine sandy loam
Bg—12 to 17 inches; dark grayish brown cobbly very fine sandy loam
C1—17 to 32 inches; brown cobbly very fine sandy loam
2C2—32 to 37 inches; brown cobbly fine sandy loam
2C3—37 to 80 inches; dark grayish brown very cobbly sandy loam

Soil Properties and Qualities

Parent material: Gratiot—loamy-skeletal till deposits; Sabattis—coarse-loamy till deposits
Slope: 0 to 4 percent
Surface runoff class: Gratiot—high; Sabattis—negligible
Potential for frost action: High
Depth to restrictive feature: Gratiot—15 to 20 inches to a fragipan; Sabattis—more than 80 inches
Drainage class: Gratiot—somewhat poorly drained; Sabattis—very poorly drained
Available water capacity: Gratiot—about 6.7 inches to a depth of 60 inches; Sabattis—about 8.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Gratiot—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Sabattis—moderate
Flooding: None

Depth to seasonal high water table: Gratiot—0.5 foot to 1.7 feet (April, May); Sabattis—at the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: Sabattis—January, February, June, July, August, September, December
Depth and most likely period of ponding: Sabattis—0.5 foot (March, April, May, November); Gratiot—none

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Gratiot—surface boulders, rock fragments, seedling mortality, windthrow hazard; Sabattis—surface boulders, rock fragments, clayey textures, seedling mortality, windthrow hazard, wetness

Building site development
Major management concerns: Gratiot—surface stones, surface boulders, large stones, seasonal wetness; Sabattis—ponding, wetness

Septic tank absorption fields
Major management concerns: Gratiot—surface stones, surface boulders, large stones, restricted permeability, depth to a fragipan, seasonal wetness; Sabattis—surface stones, surface boulders, ponding, wetness

Interpretive Groups

Land capability classification: Gratiot—7s; Sabattis—5w
Michigan soil management group: Gratiot—3b-af; Sabattis—3c
Prime farmland category: Not prime farmland
Hydric soil status: Gratiot—not hydric; Sabattis—hydric
Forest habitat type: Gratiot—AVO-CI, TMC-D; Sabattis—FI, TTM

173C—Montreal-Paavola-Dishno complex, dissected, 1 to 12 percent slopes, very rocky, very bouldery

Setting

Landform: Hillslopes, ridges, and knolls on moraines

Map Unit Composition

Major components:
Montreal, dissected, very rocky, very bouldery, and similar soils: 45 to 55 percent
Paavola, dissected, very rocky, very bouldery, and similar soils: 20 to 30 percent
Dishno, dissected, very rocky, very bouldery, and similar soils: 10 to 25 percent

Minor components:
Gratiot and similar soils (0 to 7 percent of the map unit) in depressions and drainageways
Arcadian and similar soils (0 to 5 percent of the map unit) in the higher landscape positions

Typical Profile

Montreal
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly fine sandy loam
Bhs—6 to 11 inches; dark brown cobbly fine sandy loam

Bs—11 to 20 inches; dark brown cobbly fine sandy loam
2E/Bx—20 to 33 inches; brown very cobbly loamy fine sand and reddish brown very cobbly fine sandy loam
2B/Ex—33 to 51 inches; reddish brown very cobbly fine sandy loam and very cobbly loamy fine sand
2E/B—51 to 80 inches; light brown cobbly loamy fine sand and reddish brown cobbly fine sandy loam

Paavola
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly loamy sand
Bhs—6 to 12 inches; dark brown cobbly loamy sand
Bs—12 to 27 inches; brown very gravelly sand
2E/Bx—27 to 35 inches; brown very gravelly loamy fine sand and brown gravelly fine sandy loam
2Btx—35 to 46 inches; reddish brown gravelly fine sandy loam
2C—46 to 80 inches; reddish brown gravelly sandy loam

Dishno
Oe—0 to 1 inch; dark reddish brown, moderately decomposed plant material
A—1 to 3 inches; dark reddish brown cobbly very fine sandy loam
E—3 to 4 inches; reddish gray cobbly very fine sandy loam
Bhs—4 to 8 inches; dark brown cobbly very fine sandy loam
Bs—8 to 26 inches; dark brown and brown cobbly very fine sandy loam
2BC—26 to 31 inches; brown very cobbly loamy sand
2C—31 to 42 inches; brown very cobbly loamy sand
3R—42 inches; unweathered basalt bedrock

Soil Properties and Qualities

Parent material: Montreal—coarse-loamy eolian deposits over coarse-loamy or sandy till deposits; Paavola—sandy-skeletal drift over loamy or sandy till deposits; Dishno—loamy and silty eolian deposits over coarse-loamy and sandy or sandy-skeletal till deposits over conglomerate and basalt bedrock
Slope: 1 to 12 percent
Surface runoff class: Montreal—high; Paavola—very low; Dishno—low
Potential for frost action: Montreal and Dishno—moderate; Paavola—low
Depth to restrictive feature: Montreal—14 to 41 inches to a fragipan; Paavola—20 to 30 inches to a fragipan; Dishno—40 to 60 inches to bedrock (lithic)
Drainage class: Moderately well drained
Available water capacity: Montreal and Paavola—about 4.6 inches to a depth of 60 inches; Dishno—about 6.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Montreal—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Paavola—very rapid over very slow; Dishno—moderate over moderately rapid
Flooding: None
Depth to seasonal high water table: Montreal—1.0 to 1.7 feet (April); Paavola—1.0 to 2.6 feet (April); Dishno—1.0 to 3.8 feet (April, October)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Montreal and Paavola—surface boulders, rock

fragments, seedling mortality, soil rutting, windthrow hazard, seasonal wetness; Dishno—surface boulders, rock fragments, clayey textures, seedling mortality, soil rutting, seasonal wetness

Building site development

Major management concerns: Montreal and Paavola—surface stones, surface boulders, cutbanks caving, slope, seasonal wetness; Dishno—surface stones, surface boulders, cutbanks caving, depth to bedrock, slope, seasonal wetness

Septic tank absorption fields

Major management concerns: Montreal—surface stones, surface boulders, slope, restricted permeability, depth to a fragipan, wetness; Paavola—surface stones, surface boulders, slope, poor filtering capacity, restricted permeability, depth to a fragipan, wetness; Dishno—surface stones, surface boulders, slope, depth to bedrock, wetness

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Montreal—3a-af; Paavola—Ga; Dishno—3a
Prime farmland category: Not prime farmland
Hydric soil status: Montreal—not hydric; Paavola—not hydric; Dishno—not hydric
Forest habitat type: Montreal and Dishno—AVO, ATD; Paavola—ATD, AVO

173E—Montreal-Paavola-Dishno complex, dissected, 8 to 35 percent slopes, very rocky, very bouldery

Setting

Landform: Hillslopes, ridges, and knolls on moraines

Map Unit Composition

Major components:
Montreal, dissected, very rocky, very bouldery, and similar soils: 45 to 55 percent
Paavola, dissected, very rocky, very bouldery, and similar soils: 20 to 30 percent
Dishno, dissected, very rocky, very bouldery, and similar soils: 10 to 25 percent

Minor components:
Arcadian and similar soils (0 to 6 percent of the map unit) in the higher landscape positions
Michigamme and similar soils (0 to 4 percent of the map unit) in the higher landscape positions

Typical Profile

Montreal
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly fine sandy loam
Bhs—6 to 11 inches; dark brown cobbly fine sandy loam
Bs—11 to 20 inches; dark brown cobbly fine sandy loam
2E/Bx—20 to 33 inches; brown very cobbly loamy fine sand and reddish brown very cobbly fine sandy loam
2B/Ex—33 to 51 inches; reddish brown very cobbly fine sandy loam and very cobbly loamy fine sand
2E/B—51 to 80 inches; light brown cobbly loamy fine sand and reddish brown cobbly fine sandy loam

Paavola

Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly loamy sand
Bhs—6 to 12 inches; dark brown cobbly loamy sand
Bs—12 to 27 inches; brown very gravelly sand
2E/Bx—27 to 35 inches; brown very gravelly loamy fine sand and brown gravelly fine sandy loam
2Btx—35 to 46 inches; reddish brown gravelly fine sandy loam
2C—46 to 80 inches; reddish brown gravelly sandy loam

Dishno

Oe—0 to 1 inch; dark reddish brown, moderately decomposed plant material
A—1 to 3 inches; dark reddish brown cobbly very fine sandy loam
E—3 to 4 inches; reddish gray cobbly very fine sandy loam
Bhs—4 to 8 inches; dark brown cobbly very fine sandy loam
Bs—8 to 26 inches; dark brown and brown cobbly very fine sandy loam
2BC—26 to 31 inches; brown very cobbly loamy sand
2C—31 to 42 inches; brown very cobbly loamy sand
3R—42 inches; unweathered basalt bedrock

Soil Properties and Qualities

Parent material: Montreal—coarse-loamy eolian deposits over coarse-loamy or sandy till deposits; Paavola—sandy-skeletal drift over loamy or sandy till deposits; Dishno—loamy and silty eolian deposits over coarse-loamy and sandy or sandy-skeletal till deposits over conglomerate and basalt bedrock
Slope: 8 to 35 percent
Potential surface Montreal—high; Paavola—low; Dishno—medium
Potential for frost action: Montreal and Paavola—low; Dishno—moderate
Depth to restrictive feature: Montreal—14 to 41 inches to a fragipan; Paavola—20 to 30 inches to bedrock (lithic); Dishno—40 to 60 inches to bedrock (lithic)
Drainage class: Moderately well drained
Available water capacity: Montreal and Paavola—about 4.6 inches to a depth of 60 inches; Dishno—about 6.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Montreal—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Paavola—very rapid over very slow; Dishno—moderate over moderately rapid
Flooding: None
Depth to seasonal high water table: Montreal—1.0 to 1.7 feet (April); Paavola—1.0 to 2.6 feet (April); Dishno—1.0 to 3.8 feet (April, October)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland

Major management concerns: Montreal and Paavola—erosion, surface boulders, rock fragments, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness, dissected slopes; Dishno—erosion, surface boulders, rock fragments, seedling mortality, slope, seasonal wetness, dissected slopes

Building site development

Major management concerns: Montreal—surface stones, surface boulders, cutbanks caving, slope, seasonal wetness; Paavola and Dishno—surface stones, surface boulders, cutbanks caving, depth to bedrock, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Montreal—surface stones, surface boulders, slope, restricted permeability, depth to a fragipan, wetness; Paavola—surface stones, surface boulders, slope, poor filtering capacity, restricted permeability, depth to bedrock, wetness; Dishno—surface stones, surface boulders, slope, depth to bedrock, wetness

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Montreal—3a-af; Paavola—Ga; Dishno—3a
Prime farmland category: Not prime farmland
Hydric soil status: Montreal—not hydric; Paavola—not hydric; Dishno—not hydric
Forest habitat type: Montreal, Paavola, and Dishno—AVO, ATD

174B—Montreal-Dishno-Gratiot complex, 0 to 8 percent slopes, rocky, very bouldery

Setting

Landform: Hillslopes on moraines; ridges and knolls on moraines

Map Unit Composition

Major components:
Montreal, rocky, very bouldery, and similar soils: 45 to 60 percent
Dishno, rocky, very bouldery, and similar soils: 15 to 30 percent
Gratiot, rocky, very bouldery, and similar soils: 10 to 25 percent

Minor components:
Paavola and similar soils (0 to 6 percent of the map unit) in landscape positions similar to those of the Montreal soil
Sabattis and similar soils (0 to 3 percent of the map unit) in depressions and drainageways
Arcadian and similar soils (0 to 3 percent of the map unit) in the higher landscape positions

Typical Profile

Montreal
Oa—0 to 2 inches; black, highly decomposed plant material
E—2 to 6 inches; brown cobbly fine sandy loam
Bhs—6 to 11 inches; dark brown cobbly fine sandy loam
Bs—11 to 20 inches; dark brown cobbly fine sandy loam
2E/Bx—20 to 33 inches; brown very cobbly loamy fine sand and reddish brown very cobbly fine sandy loam
2B/Ex—33 to 51 inches; reddish brown very cobbly fine sandy loam and very cobbly loamy fine sand
2E/B—51 to 80 inches; light brown cobbly loamy fine sand and reddish brown cobbly fine sandy loam

Dishno
Oe—0 to 1 inch; dark reddish brown, moderately decomposed plant material
A—1 to 3 inches; dark reddish brown cobbly very fine sandy loam
E—3 to 4 inches; reddish gray cobbly very fine sandy loam
Bhs—4 to 8 inches; dark brown cobbly very fine sandy loam
Bs—8 to 26 inches; dark brown and brown cobbly very fine sandy loam
2BC—26 to 31 inches; brown very cobbly loamy sand

2C—31 to 42 inches; brown very cobbly loamy sand
3R—42 inches; unweathered basalt bedrock

Gratiot
Oa—0 to 1 inch; dark reddish brown, highly decomposed plant material
A—1 to 4 inches; black very cobbly fine sandy loam
Bhs—4 to 7 inches; dark reddish brown very cobbly loamy sand
Bs1—7 to 12 inches; dark reddish brown very cobbly loamy sand
Bs2—12 to 20 inches; reddish brown very cobbly fine sandy loam
B/Ex—20 to 30 inches; reddish brown cobbly fine sandy loam and cobbly loamy fine sand
C—30 to 80 inches; reddish brown cobbly fine sandy loam

Soil Properties and Qualities

Parent material: Montreal—coarse-loamy eolian deposits over coarse-loamy or sandy till deposits; Dishno—loamy and silty eolian deposits over coarse-loamy and sandy or sandy-skeletal till deposits over conglomerate and basalt deposits; Gratiot—loamy-skeletal till deposits
Slope: Montreal and Dishno—0 to 8 percent; Gratiot—0 to 4 percent
Surface runoff class: Montreal and Gratiot—high; Dishno—low
Potential for frost action: Montreal and Dishno—moderate; Gratiot—high
Depth to restrictive feature: Montreal—14 to 41 inches to a fragipan; Dishno—40 to 60 inches to bedrock (lithic); Gratiot—15 to 20 inches to a fragipan
Drainage class: Montreal and Dishno—moderately well drained; Gratiot—somewhat poorly drained
Available water capacity: Montreal—about 4.6 inches to a depth of 60 inches; Dishno—about 6.3 inches to a depth of 60 inches; Gratiot—about 6.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Montreal—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Dishno—moderate over moderately rapid; Gratiot—moderate in the upper part, very slow in the fragipan, and moderate in the lower part
Flooding: None
Depth to seasonal high water table: Montreal—1.0 to 1.7 feet (April); Dishno—1.0 to 3.8 feet (April, October); Gratiot—0.5 foot to 1.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Montreal—surface boulders, rock fragments, seedling mortality, soil rutting, windthrow hazard, seasonal wetness; Dishno—surface boulders, rock fragments, clayey textures, seedling mortality, soil rutting; Gratiot—surface boulders, rock fragments, clayey textures, seedling mortality, windthrow hazard

Building site development
Major management concerns: Montreal—surface stones, surface boulders, slope, seasonal wetness; Dishno—surface stones, surface boulders, depth to bedrock, slope, seasonal wetness; Gratiot—surface stones, surface boulders, large stones, seasonal wetness

Septic tank absorption fields
Major management concerns: Montreal—surface stones, surface boulders, slope,

restricted permeability, depth to a fragipan, wetness; Dishno—surface stones, surface boulders, slope, restricted permeability, depth to bedrock, wetness; Gratiot—surface stones, surface boulders, large stones, restricted permeability, depth to a fragipan, seasonal wetness

Interpretive Groups

Land capability classification: Montreal and Dishno—6s; Gratiot—7s
Michigan soil management group: Montreal—3a-af; Dishno—3a; Gratiot—3b-af
Prime farmland category: Not prime farmland
Hydric soil status: Montreal—not hydric; Dishno—not hydric; Gratiot—not hydric
Forest habitat type: Montreal and Dishno—ATD, AVO; Gratiot—AVO-CI, ATD-CI

177A—Assinins sand, 0 to 4 percent slopes

Setting

Landform: Drainageways and depressions on till plains and ground moraines

Map Unit Composition

Major components:
Assinins and similar soils: 75 to 100 percent

Minor components:
Yalmer and similar soils (0 to 10 percent of the map unit) in the higher landscape positions
Skanee and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Assinins soil
Gay and similar soils (0 to 6 percent of the map unit) in depressions and drainageways

Typical Profile

Assinins
Oa—0 to 2 inches; black, highly decomposed plant material
A—2 to 11 inches; pinkish gray and light brownish gray sand
Bhs—11 to 15 inches; dark brown sand
Bs—15 to 24 inches; brown sand
B/E—24 to 37 inches; dark yellowish brown sandy loam
C—37 to 80 inches; reddish brown sandy loam

Soil Properties and Qualities

Parent material: Sandy drift over coarse-loamy till
Slope: 0 to 4 percent
Surface runoff class: Medium
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 7.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness

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

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

Interpretive Groups

Land capability classification: 3w
Michigan soil management group: 4b
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: TMC

183C—Munising-Abbaye-Yalmer complex, dissected, 1 to 12 percent slopes, stony

Setting

Landform: Hillslopes, ridges, and knolls on ground moraines

Map Unit Composition

Major components:
Munising, dissected, stony, and similar soils: 35 to 55 percent
Abbaye, dissected, stony, and similar soils: 20 to 35 percent
Yalmer, dissected, stony, and similar soils: 10 to 25 percent

Minor components:
Skanee and similar soils (0 to 7 percent of the map unit) in depressions and drainageways
Zeba and similar soils (0 to 5 percent of the map unit) in depressions and drainageways
Waiska and similar soils (0 to 3 percent of the map unit) in the higher landscape positions

Typical Profile

Munising
Oe—0 to 2 inches; brown, moderately decomposed plant material
Oa—2 to 4 inches; black, highly decomposed plant material
E—4 to 11 inches; brown fine sandy loam
Bhs—11 to 13 inches; dark brown fine sandy loam
Bs—13 to 18 inches; dark brown fine sandy loam
B/Ex—18 to 31 inches; reddish brown sandy loam and light brown loamy sand
Bt—31 to 51 inches; reddish brown sandy loam
C—51 to 80 inches; brown sandy loam

Abbaye
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 5 inches; reddish brown fine sandy loam
Bhs—5 to 11 inches; dark reddish brown fine sandy loam
Bs—11 to 18 inches; reddish brown gravelly fine sandy loam
B/Ex—18 to 28 inches; reddish brown gravelly fine sandy loam and gravelly fine sandy loam

2Cr—28 to 30 inches; reddish brown extremely flaggy fine sandy loam
2R—30 inches; reddish brown and pinkish gray, unweathered sandstone bedrock

Yalmer
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 6 inches; reddish gray loamy sand
Bhs—6 to 13 inches; dark reddish brown loamy sand
Bs—13 to 28 inches; reddish brown loamy sand
2E/Bx—28 to 43 inches; reddish brown loamy sand and sandy loam
2B/Ex—43 to 52 inches; reddish brown sandy loam and loamy sand
2C—52 to 80 inches; reddish brown sandy loam

Soil Properties and Qualities

Parent material: Munising—loamy till deposits; Abbaye—loamy till deposits over sandstone; Yalmer—sandy outwash over loamy till deposits
Slope: 1 to 12 percent
Surface runoff class: Low
Potential for frost action: Munising and Abbaye—moderate; Yalmer—low
Depth to restrictive feature: Munising—15 to 22 inches to a fragipan; Abbaye—20 to 40 inches to bedrock (lithic); Yalmer—20 to 30 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: Munising—about 7.6 inches to a depth of 60 inches; Abbaye—about 4.2 inches to a depth of 60 inches; Yalmer—about 5.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Munising—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Abbaye—moderate; Yalmer—rapid in the upper part, very slow in the fragipan, and moderate in the lower part
Flooding: None
Depth to seasonal high water table: Munising—1.0 to 1.7 feet (April); Abbaye—1.0 to 2.7 feet (April, October); Yalmer—1.0 to 2.0 feet (April)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Munising—seedling mortality, soil rutting, windthrow hazard, seasonal wetness; Abbaye—surface stones, seedling mortality, depth to bedrock; Yalmer—surface stones, seedling mortality, soil rutting, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Munising—surface stones, cutbanks caving, slope, seasonal wetness; Abbaye—surface stones, large stones, depth to bedrock, slope, seasonal wetness; Yalmer—surface stones, cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Munising—surface stones, slope, restricted permeability, depth to a fragipan, wetness; Abbaye—surface stones, large stones, slope, depth to bedrock, wetness; Yalmer—surface stones, slope, poor filtering capacity, restricted permeability, depth to a fragipan, wetness

Interpretive Groups

Land capability classification: Munising—6e; Abbaye—6e; Yalmer—7s
Michigan soil management group: Munising—3a-af; Abbaye—3/Ra; Yalmer—4a-a
Prime farmland category: Not prime farmland
Hydric soil status: Munising—not hydric; Abbaye—not hydric; Yalmer—not hydric
Forest habitat type: Munising and Yalmer—TM, ATD; Abbaye—ATD

183E—Munising-Abbaye-Yalmer complex, dissected, 8 to 35 percent slopes, stony

Setting

Landform: Hillslopes, ridges, and knolls on ground moraines

Map Unit Composition

Major components:
Munising, dissected, stony, and similar soils: 35 to 55 percent
Abbaye, dissected, stony, and similar soils: 20 to 35 percent
Yalmer, dissected, stony, and similar soils: 10 to 25 percent

Minor components:
Waiska and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Munising soil
Keweenaw and similar soils (0 to 4 percent of the map unit) in landscape positions similar to those of the Yalmer soil
Zeba, stony, and similar soils (0 to 2 percent of the map unit) in depressions and drainageways

Typical Profile

Munising
Oe—0 to 2 inches; brown, moderately decomposed plant material
Oa—2 to 4 inches; black, highly decomposed plant material
E—4 to 11 inches; brown fine sandy loam
Bhs—11 to 13 inches; dark brown fine sandy loam
Bs—13 to 18 inches; dark brown fine sandy loam
B/Ex—18 to 31 inches; reddish brown sandy loam and light brown loamy sand
Bt—31 to 51 inches; reddish brown sandy loam
C—51 to 80 inches; brown sandy loam

Abbaye
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 5 inches; reddish brown fine sandy loam
Bhs—5 to 11 inches; dark reddish brown fine sandy loam
Bs—11 to 18 inches; reddish brown gravelly fine sandy loam
B/Ex—18 to 28 inches; reddish brown gravelly fine sandy loam and gravelly fine sandy loam
2Cr—28 to 30 inches; reddish brown extremely flaggy fine sandy loam
2R—30 inches; reddish brown and pinkish gray, unweathered sandstone bedrock

Yalmer
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 6 inches; reddish gray loamy sand
Bhs—6 to 13 inches; dark reddish brown loamy sand

Bs—13 to 28 inches; reddish brown loamy sand
2E/Bx—28 to 43 inches; reddish brown loamy sand and sandy loam
2B/Ex—43 to 52 inches; reddish brown sandy loam and loamy sand
2C—52 to 80 inches; reddish brown sandy loam

Soil Properties and Qualities

Parent material: Munising—loamy till deposits; Abbaye—loamy till deposits over sandstone; Yalmer—sandy outwash over loamy till
Slope: 8 to 35 percent
Surface runoff class: Munising—high; Abbaye—medium; Yalmer—low
Potential for frost action: Munising—moderate; Abbaye—moderate; Yalmer—low
Depth to restrictive feature: Munising—15 to 22 inches to a fragipan; Abbaye—20 to 40 inches to bedrock (lithic); Yalmer—20 to 30 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: Munising—about 7.6 inches to a depth of 60 inches; Abbaye—about 4.2 inches to a depth of 60 inches; Yalmer—about 5.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Munising—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Abbaye—moderate; Yalmer—rapid in the upper part, very slow in the fragipan, and moderate in the lower part
Flooding: None
Depth to seasonal high water table: Munising—1.0 to 1.7 feet (April); Abbaye—1.0 to 2.7 feet (April, October); Yalmer—1.0 to 2.0 feet (April)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Munising—erosion, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness, dissected slopes; Abbaye—seedling mortality, slope, dissected slopes; Yalmer—erosion, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness, dissected slopes

Building site development
Major management concerns: Munising—surface stones, cutbanks caving, slope, seasonal wetness; Abbaye—surface stones, large stones, depth to bedrock, slope, seasonal wetness; Yalmer—surface stones, cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Munising—surface stones, slope, restricted permeability, depth to a fragipan, wetness; Abbaye—surface stones, large stones, slope, depth to bedrock, wetness; Yalmer—surface stones, slope, poor filtering capacity, restricted permeability, depth to a fragipan, wetness

Interpretive Groups

Land capability classification: Munising and Abbaye—7e; Yalmer—7s
Michigan soil management group: Munising—3a-af; Abbaye—3/Ra; Yalmer—4a-a
Prime farmland category: Not prime farmland
Hydric soil status: Munising—not hydric; Abbaye—not hydric; Yalmer—not hydric
Forest habitat type: Munising—TM, ATD; Abbaye—ATD; Yalmer—ATD, TM

184C—Munising-Yalmer complex, dissected, 1 to 12 percent slopes

Setting

Landform: Knolls, ridges, and hillslopes on ground moraines

Map Unit Composition

Major components:
Munising, dissected, and similar soils: 55 to 90 percent
Yalmer, dissected, and similar soils: 10 to 35 percent

Minor components:
Skanee and similar soils (0 to 5 percent of the map unit) in depressions and drainageways
Keweenaw and similar soils (0 to 3 percent of the map unit) in landscape positions similar to those of the Munising soil
Abbaye and similar soils (0 to 2 percent of the map unit) in landscape positions similar to those of the Yalmer soil

Typical Profile

Munising
Oe—0 to 2 inches; brown, moderately decomposed plant material
Oa—2 to 4 inches; black, highly decomposed plant material
E—4 to 11 inches; brown fine sandy loam
Bhs—11 to 13 inches; dark brown fine sandy loam
Bs—13 to 18 inches; dark brown fine sandy loam
B/Ex—18 to 31 inches; reddish brown sandy loam and light brown loamy sand
Bt—31 to 51 inches; reddish brown sandy loam
C—51 to 80 inches; brown sandy loam

Yalmer
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 6 inches; reddish gray loamy sand
Bhs—6 to 13 inches; dark reddish brown loamy sand
Bs—13 to 28 inches; reddish brown loamy sand
2E/Bx—28 to 43 inches; reddish brown loamy sand and sandy loam
2B/Ex—43 to 52 inches; reddish brown sandy loam and loamy sand
2C—52 to 80 inches; reddish brown sandy loam

Soil Properties and Qualities

Parent material: Munising—loamy till deposits; Yalmer—sandy outwash over loamy till deposits
Slope: 1 to 12 percent
Surface runoff class: Munising—high; Yalmer—low
Potential for frost action: Munising—moderate; Yalmer—low
Depth to restrictive feature: Munising—15 to 22 inches to a fragipan; Yalmer—20 to 30 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: Munising—about 7.6 inches to a depth of 60 inches; Yalmer—about 5.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Munising—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Yalmer—rapid in the upper part, very slow in the fragipan, and moderate in the lower part

Flooding: None
Depth to seasonal high water table: Munising—1.0 to 1.7 feet (April); Yalmer—1.0 to 2.0 feet (April)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Seedling mortality, soil rutting, windthrow hazard, seasonal wetness

Building site development
Major management concerns: Munising—surface stones, slope, seasonal wetness; Yalmer—seedling mortality, soil rutting, cutbanks caving, windthrow hazard, seasonal wetness

Septic tank absorption fields
Major management concerns: Munising—surface stones, slope, restricted permeability, depth to a fragipan, wetness; Yalmer—surface stones, slope, poor filtering capacity, restricted permeability, depth to a fragipan, wetness

Interpretive Groups

Land capability classification: Munising—7e; Yalmer—4e
Michigan soil management group: Munising—3a-af; Yalmer—4a-a
Prime farmland category: Not prime farmland
Hydric soil status: Munising—not hydric; Yalmer—not hydric
Forest habitat type: Munising—TM, ATD; Yalmer—ATD, TM

184E—Munising-Yalmer complex, dissected, 8 to 35 percent slopes

Setting

Landform: Knolls, ridges, and hillslopes on ground moraines

Map Unit Composition

Major components:
Munising, dissected, and similar soils: 55 to 90 percent
Yalmer, dissected, and similar soils: 10 to 35 percent

Minor components:
Keweenaw and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Yalmer soil
Garlic and similar soils (0 to 3 percent of the map unit) in landscape positions similar to those of the Yalmer soil
Abbaye and similar soils (0 to 2 percent of the map unit) in landscape positions similar to those of the Munising soil

Typical Profile

Munising
Oe—0 to 2 inches; brown, moderately decomposed plant material
Oa—2 to 4 inches; black, highly decomposed plant material
E—4 to 11 inches; brown fine sandy loam
Bhs—11 to 13 inches; dark brown fine sandy loam
Bs—13 to 18 inches; dark brown fine sandy loam

B/Ex—18 to 31 inches; reddish brown sandy loam and light brown loamy sand
Bt—31 to 51 inches; reddish brown sandy loam
C—51 to 80 inches; brown sandy loam

Yalmer
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 6 inches; reddish gray loamy sand
Bhs—6 to 13 inches; dark reddish brown loamy sand
Bs—13 to 28 inches; reddish brown loamy sand
2E/Bx—28 to 43 inches; reddish brown loamy sand and sandy loam
2B/Ex—43 to 52 inches; reddish brown sandy loam and loamy sand
2C—52 to 80 inches; reddish brown sandy loam

Soil Properties and Qualities

Parent material: Munising—loamy till deposits; Yalmer—sandy outwash over loamy till deposits
Slope: 8 to 35 percent
Surface runoff class: High
Potential for frost action: Munising—moderate; Yalmer—low
Depth to restrictive feature: Munising—15 to 22 inches to a fragipan; Yalmer—20 to 30 inches to a fragipan
Drainage class: Moderately well drained
Available water capacity: Munising—about 7.6 inches to a depth of 60 inches; Yalmer—about 5.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Munising—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Yalmer—rapid in the upper part, very slow in the fragipan, and moderate in the lower part
Flooding: None
Depth to seasonal high water table: Munising—1.0 to 1.7 feet (April); Yalmer—1.0 to 2.0 feet (April)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Erosion, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness, dissected slopes

Building site development
Major management concerns: Surface stones, cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Munising—surface stones, slope, restricted permeability, depth to a fragipan, wetness; Yalmer—surface stones, slope, poor filtering capacity, restricted permeability, depth to a fragipan, wetness

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Munising—3a-af; Yalmer—4a-a
Prime farmland category: Not prime farmland
Hydric soil status: Munising—not hydric; Yalmer—not hydric
Forest habitat type: Munising and Yalmer—ATD, TM

185B—Munising-Skanee complex, dissected, 1 to 8 percent slopes

Setting

Landform: Knolls, ridges, and hillslopes on ground moraines

Map Unit Composition

Major components:
Munising, dissected, and similar soils: 45 to 80 percent
Skanee, dissected, and similar soils: 10 to 45 percent

Minor components:
Gay and similar soils (0 to 5 percent of the map unit) in depressions and drainageways
Yalmer and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Munising soil
Assinins and similar soils (0 to 3 percent of the map unit) in landscape positions similar to those of the Skanee soil

Typical Profile

Munising
Oe—0 to 2 inches; brown, moderately decomposed plant material
Oa—2 to 4 inches; black, highly decomposed plant material
E—4 to 11 inches; brown fine sandy loam
Bhs—11 to 13 inches; dark brown fine sandy loam
Bs—13 to 18 inches; dark brown fine sandy loam
B/Ex—18 to 31 inches; reddish brown sandy loam and light brown loamy sand
Bt—31 to 51 inches; reddish brown sandy loam
C—51 to 80 inches; brown sandy loam

Skanee
Oa—0 to 2 inches; black, moderately decomposed plant material
E—2 to 8 inches; pinkish gray and reddish gray loamy sand
Bhs—8 to 15 inches; dark reddish brown and reddish brown sandy loam
E/Bx—15 to 29 inches; reddish brown sandy loam and weak red loamy sand
Bt—29 to 44 inches; reddish brown sandy loam
C—44 to 80 inches; reddish brown sandy loam

Soil Properties and Qualities

Parent material: Loamy till deposits
Slope: Munising—1 to 8 percent; Skanee—1 to 6 percent
Surface runoff class: Munising—medium; Skanee—very high
Potential for frost action: Munising—moderate; Skanee—high
Depth to restrictive feature: Munising—15 to 22 inches to a fragipan; Skanee—12 to 18 inches to a fragipan
Drainage class: Munising—moderately well drained; Skanee—somewhat poorly drained
Available water capacity: Munising—about 7.6 inches to a depth of 60 inches; Skanee—about 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate in the upper part, very slow in the fragipan, and moderate in the lower part
Flooding: None

Depth to seasonal high water table: Munising—1.0 to 1.7 feet (April); Skanee—0.5 foot to 1.2 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Munising—seedling mortality, soil rutting, windthrow hazard, seasonal wetness; Skanee—seedling mortality, windthrow hazard

Building site development
Major management concerns: Munising—surface stones, cutbanks caving, slope, seasonal wetness; Skanee—surface stones, seasonal wetness

Septic tank absorption fields
Major management concerns: Surface stones, slope, restricted permeability, depth to a fragipan, wetness; Skanee—surface stones, restricted permeability, depth to a fragipan, seasonal wetness

Interpretive Groups

Land capability classification: Munising—6s; Skanee—2e
Michigan soil management group: Munising—3a-af; Skanee—3b-a
Prime farmland category: Not prime farmland
Hydric soil status: Munising—not hydric; Skanee—not hydric
Forest habitat type: Munising—ATD, TM; Skanee—TMC, TMC-D

185C—Munising-Skanee complex, dissected, 4 to 18 percent slopes

Setting

Landform: Knolls, ridges, and hillslopes on ground moraines

Map Unit Composition

Major components:
Munising, dissected, and similar soils: 55 to 80 percent
Skanee, dissected, and similar soils: 20 to 35 percent

Minor components:
Yalmer and similar soils (0 to 5 percent of the map unit) in ravines and in areas of bottom land
Assinins and similar soils (0 to 5 percent of the map unit) in the slightly lower landscape positions
Gay and similar soils (0 to 3 percent of the map unit) in depressions and drainageways

Typical Profile

Munising
Oe—0 to 2 inches; brown, moderately decomposed plant material
Oa—2 to 4 inches; black, highly decomposed plant material
E—4 to 11 inches; brown fine sandy loam
Bhs—11 to 13 inches; dark brown fine sandy loam
Bs—13 to 18 inches; dark brown fine sandy loam

B/Ex—18 to 31 inches; reddish brown sandy loam and light brown loamy sand
Bt—31 to 51 inches; reddish brown sandy loam
C—51 to 80 inches; brown sandy loam

Skanee
Oa—0 to 2 inches; black, moderately decomposed plant material
E—2 to 8 inches; pinkish gray and reddish gray loamy sand
Bhs—8 to 15 inches; dark reddish brown and reddish brown sandy loam
E/Bx—15 to 29 inches; reddish brown sandy loam and weak red loamy sand
Bt—29 to 44 inches; reddish brown sandy loam
C—44 to 80 inches; reddish brown sandy loam

Soil Properties and Qualities

Parent material: Loamy till deposits
Slope: Munising—4 to 18 percent; Skanee—4 to 6 percent
Surface runoff class: Munising—high; Skanee—very high
Potential for frost action: Munising—moderate; Skanee—high
Depth to restrictive feature: Munising—15 to 22 inches to a fragipan; Skanee—12 to 18 inches to a fragipan
Drainage class: Munising—moderately well drained; Skanee—somewhat poorly drained
Available water capacity: Munising—about 7.6 inches to a depth of 60 inches; Skanee—about 3.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate in the upper part, very slow in the fragipan, and moderate in the lower part
Flooding: None
Depth to seasonal high water table: Munising—1.0 to 1.7 feet (April); Skanee—0.5 foot to 1.2 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Munising—erosion, seedling mortality, soil rutting, windthrow hazard, slope, seasonal wetness; Skanee—seedling mortality, windthrow hazard

Building site development
Major management concerns: Munising—surface stones, cutbanks caving, slope, seasonal wetness; Skanee—surface stones, surface boulders, seasonal wetness

Septic tank absorption fields
Major management concerns: Munising—surface stones, slope, restricted permeability, depth to a fragipan, wetness; Skanee—surface stones, restricted permeability, depth to a fragipan, wetness

Interpretive Groups

Land capability classification: Munising—6s; Skanee—2e
Michigan soil management group: Munising—3a-af; Skanee—3b-a
Prime farmland category: Not prime farmland
Hydric soil status: Munising—not hydric; Skanee—not hydric
Forest habitat type: Munising—ATD, TM; Skanee—TM, TMC, ATD

187A—Skanee-Gay complex, 0 to 3 percent slopes

Setting

Landform: Depression, drainageways, and knolls on ground moraines

Map Unit Composition

Major components:
- Skanee and similar soils: 50 to 65 percent
- Gay and similar soils: 20 to 40 percent

Minor components:
- Assinins and similar soils (0 to 6 percent of the map unit) in landscape positions similar to those of the Skanee soil
- Cathro and similar soils (0 to 5 percent of the map unit) in landscape positions similar to those of the Gay soil
- Munising and similar soils (0 to 3 percent of the map unit) in the higher landscape positions

Typical Profile

Skanee
Oa—0 to 2 inches; black, moderately decomposed plant material
E—2 to 8 inches; pinkish gray and reddish gray loamy sand
Bhs—8 to 15 inches; dark reddish brown and reddish brown sandy loam
E/Bx—15 to 29 inches; reddish brown sandy loam and weak red loamy sand
Bt—29 to 44 inches; reddish brown sandy loam
C—44 to 80 inches; reddish brown sandy loam

Gay
Oa—0 to 4 inches; very dark gray muck
A—4 to 7 inches; dark gray fine sandy loam
Eg—7 to 11 inches; light brownish gray sandy loam
Bw—11 to 16 inches; brown sandy loam
BC—16 to 30 inches; reddish brown sandy loam
C—30 to 60 inches; reddish brown sandy loam

Soil Properties and Qualities

Parent material: Loamy till deposits
Slope: 0 to 3 percent
Surface runoff class: Skanee—very high; Gay—negligible
Potential for frost action: High
Depth to restrictive feature: Skanee—12 to 18 inches to a fragipan; Gay—more than 80 inches
Drainage class: Skanee—somewhat poorly drained; Gay—poorly drained
Available water capacity: Skanee—about 3.5 inches to a depth of 60 inches; Gay—about 8.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Skanee—moderate in the upper part, very slow in the fragipan, and moderate in the lower part; Gay—moderate
Flooding: None
Depth to seasonal high water table: Skanee—0.5 foot to 1.2 feet (April, May); Gay—at the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: Gay—January, February, June, July, August, September, December; Skanee—all year
Depth and most likely period of ponding: Gay—0.5 foot (March, April, May, November)

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Skanee—seedling mortality, windthrow hazard; Gay—seedling mortality, windthrow hazard, wetness

Building site development
Major management concerns: Skanee—seasonal wetness; Gay—ponding, wetness

Septic tank absorption fields
Major management concerns: Skanee—restricted permeability, depth to a fragipan, seasonal wetness; Gay—ponding, wetness

Interpretive Groups

Land capability classification: Skanee—2e; Gay—5w
Michigan soil management group: Skanee—3b-a; Gay—3c
Prime farmland category: Not prime farmland
Hydric soil status: Skanee—not hydric; Gay—hydric
Forest habitat type: Skanee—TMC, TMC-D; Gay—TTS

192B—Nipissing-Arcadian-Rock outcrop complex, 0 to 8 percent slopes, very stony

Setting

Landform: Knolls, ridges, and hillslopes on lake benches and beach terraces on moraines

Map Unit Composition

Major components:
Nipissing, very stony, and similar soils: 40 to 90 percent
Arcadian, very stony, and similar soils: 10 to 25 percent
Rock outcrop: 10 to 15 percent

Minor components:
Copper Harbor and similar soils (0 to 10 percent of the map unit) in the lower landscape positions
Bete Grise and similar soils (0 to 8 percent of the map unit) in depressions and drainageways
Gratiot and similar soils (0 to 5 percent of the map unit) in depressions and drainageways

Typical Profile

Nipissing
Oi—0 to 1 inch; black, moderately decomposed plant material
Oa—1 to 3 inches; black, highly decomposed plant material
E—3 to 4 inches; dark reddish gray very cobbly fine sandy loam
Bhs1—4 to 20 inches; dark reddish brown extremely cobbly fine sandy loam
Bhs2—20 to 29 inches; very dusky red extremely cobbly fine sandy loam
Bs—29 to 35 inches; dark reddish brown extremely cobbly fine sandy loam
2C—35 to 39 inches; fragmental material
3R—39 inches; conglomerate and basalt bedrock

Arcadian
Oa—0 to 3 inches; black, highly decomposed plant material

E—3 to 5 inches; dark brown very gravelly fine sandy loam
Bhs—5 to 12 inches; dark reddish brown very gravelly fine sandy loam
2R—12 inches; conglomerate bedrock

Soil Properties and Qualities

Parent material: Nipissing—loamy-skeletal over fragmental drift over conglomerate deposits over basalt bedrock; Arcadian—loamy-skeletal drift over basalt and conglomerate bedrock
Slope: 0 to 8 percent
Surface runoff class: Nipissing—negligible; Arcadian—low
Potential for frost action: Moderate
Depth to restrictive feature: Nipissing—20 to 40 inches to bedrock (lithic); Arcadian—10 to 20 inches to bedrock (lithic)
Drainage class: Well drained
Available water capacity: Nipissing—about 3.1 inches to a depth of 60 inches; Arcadian—about 2.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Nipissing—moderately rapid over very rapid; Arcadian—moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development, idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Woodland
Major management concerns: Nipissing—rock fragments, seedling mortality, depth to bedrock, rock outcrops; Arcadian—surface stones, rock fragments, seedling mortality, windthrow hazard, depth to bedrock, rock outcrops

Building site development
Major management concerns: Nipissing—surface stones, large stones, depth to bedrock, slope; Arcadian—surface stones, depth to bedrock, slope

Septic tank absorption fields
Major management concerns: Nipissing—surface stones, large stones, slope, poor filtering capacity, depth to bedrock; Arcadian—surface stones, slope, depth to bedrock

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: Nipissing—G/Ra; Arcadian—Ra
Prime farmland category: Not prime farmland
Hydric soil status: Nipissing—not hydric; Arcadian—not hydric
Forest habitat type: Nipissing and Arcadian—TMC, AQVac

194B—Copper Harbor extremely gravelly sandy loam, 0 to 4 percent slopes, very stony

Setting

Landform: Knolls and beach ridges on lake bench terraces, outwash plains, and stream terraces

Map Unit Composition

Major components:
Copper Harbor, very stony, and similar soils: 85 to 95 percent

Minor components:
Nipissing and similar soils (0 to 10 percent of the map unit) in the higher landscape positions
Bete Grise and similar soils (0 to 7 percent of the map unit) in depressions and drainageways
Waiska and similar soils (0 to 5 percent of the map unit) in the slightly higher landscape positions

Typical Profile

Copper Harbor
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 5 inches; dark reddish brown very gravelly loamy coarse sand
Bhs—5 to 14 inches; dark reddish brown extremely gravelly loamy coarse sand
Bs—14 to 30 inches; dark reddish brown and brown extremely gravelly coarse sand
BC—30 to 40 inches; brown very gravelly coarse sand and very gravelly loamy coarse sand
C—40 to 60 inches; reddish brown very gravelly sand
2C—60 to 80 inches; reddish brown very cobbly loamy coarse sand

Soil Properties and Qualities

Parent material: Sandy-skeletal glaciolacustrine and glaciofluvial deposits over sandy-skeletal or loamy-skeletal till deposits
Slope: 0 to 4 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Very rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Rock fragments, seedling mortality

Building site development
Major management concerns: Surface stones, cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Surface stones, poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Ga
Prime farmland category: Not prime farmland

Hydric soil status: Not hydric
Forest habitat type: ATD

195B—Copper Harbor-Bete Grise complex, 0 to 4 percent slopes, stony

Setting

Landform: Beach ridges and knolls on beach terraces, stream terraces, and outwash plains

Map Unit Composition

Major components:
Copper Harbor, stony, and similar soils: 45 to 60 percent
Bete Grise, stony, and similar soils: 35 to 45 percent

Minor components:
Gratiot and similar soils (0 to 10 percent of the map unit) in landscape positions similar to those of the Bete Grise soil
Paavola and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Copper Harbor soil
Nipissing and similar soils (0 to 5 percent of the map unit) in the higher landscape positions

Typical Profile

Copper Harbor
Oa—0 to 1 inch; black, highly decomposed plant material
E—1 to 5 inches; dark reddish brown very gravelly loamy coarse sand
Bhs—5 to 14 inches; dark reddish brown extremely gravelly loamy coarse sand
Bs—14 to 30 inches; dark reddish brown and brown extremely gravelly coarse sand
BC—30 to 40 inches; brown very gravelly coarse sand, very gravelly loamy coarse sand
C—40 to 60 inches; reddish brown very gravelly sand
2C—60 to 80 inches; reddish brown very cobbly loamy coarse sand

Bete Grise
Oa—0 to 2 inches; dark reddish brown, highly decomposed plant material
E—2 to 5 inches; dark reddish gray very gravelly loamy sand
Bhs—5 to 17 inches; dark reddish brown very gravelly loamy coarse sand
Bs—17 to 32 inches; dark reddish brown and brown very gravelly coarse sand
BC—32 to 36 inches; brown extremely gravelly coarse sand
C—36 to 59 inches; reddish brown very gravelly sand
2C—59 to 80 inches; reddish brown very cobbly sand

Soil Properties and Qualities

Parent material: Copper Harbor—sandy-skeletal glaciolacustrine and glaciofluvial deposits over sandy-skeletal or loamy-skeletal till deposits; Bete Grise—sandy-skeletal glaciolacustrine and glaciofluvial deposits over sandy-skeletal or loamy-skeletal till deposits
Slope: 0 to 4 percent
Surface runoff class: Copper Harbor—negligible; Bete Grise—very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Copper Harbor—moderately well drained; Bete Grise—somewhat poorly drained

Available water capacity: Copper Harbor—about 4.2 inches to a depth of 60 inches; Bete Grise—about 2.9 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Very rapid
Flooding: None
Depth to seasonal high water table: Copper Harbor—2.0 to 6.7 feet (April, May); Bete Grise—0.5 foot to 6.7 feet (April, May)
Ponding: None

Use and Management

Land use: Major use—woodland; other uses—wildlife habitat, building site development

Woodland
Major management concerns: Copper Harbor—rock fragments, seedling mortality; Bete Grise—surface stones, rock fragments, seedling mortality, windthrow hazard

Building site development
Major management concerns: Surface stones, cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Copper Harbor—surface stones, poor filtering capacity, seasonal wetness; Bete Grise—surface stones, poor filtering capacity, wetness

Interpretive Groups

Land capability classification: Copper Harbor—6s; Bete Grise—4w
Michigan soil management group: Copper Harbor—Ga; Bete Grise—Gbc
Prime farmland category: Not prime farmland
Hydric soil status: Copper Harbor—not hydric; Bete Grise—not hydric
Forest habitat type: Copper Harbor—ATD; Bete Grise—TMC-D

196B—Bete Grise-Tawas complex, 0 to 4 percent slopes, stony

Setting

Landform: Depressions and beach ridges on outwash plains, stream terraces, and lake bench terraces

Map Unit Composition

Major components:
- Bete Grise, stony, and similar soils: 35 to 50 percent
- Tawas, stony, and similar soils: 35 to 45 percent

Minor components:
- Gratiot and similar soils (0 to 9 percent of the map unit) in landscape positions similar to those of the Bete Grise soil
- Sabattis and similar soils (0 to 8 percent of the map unit) in landscape positions similar to those of the Tawas soil
- Deford and similar soils (0 to 7 percent of the map unit) in landscape positions similar to those of the Tawas soil

Typical Profile

Bete Grise
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; very gravelly loamy sand

Bhs—5 to 17 inches; very gravelly loamy coarse sand
Bs—17 to 32 inches; very gravelly coarse sand
BC—32 to 36 inches; extremely gravelly coarse sand
C—36 to 59 inches; very gravelly sand
2C—59 to 80 inches; very cobbly sand

Tawas
Oa1—0 to 6 inches; black muck
Oa2—6 to 25 inches; black muck
Cg—25 to 80 inches; dark grayish brown sand

Soil Properties and Qualities

Parent material: Bete Grise—sandy-skeletal glaciolacustrine and glaciofluvial deposits over sandy-skeletal or loamy-skeletal till deposits; Tawas—organic material over sandy drift
Slope: Bete Grise—0 to 4 percent; Tawas—0 to 1 percent
Surface runoff class: Negligible
Potential for frost action: Bete Grise—low; Tawas—high
Depth to restrictive feature: More than 80 inches
Drainage class: Bete Grise—somewhat poorly drained; Tawas—very poorly drained
Available water capacity: Bete Grise—about 2.9 inches to a depth of 60 inches; Tawas—about 11.5 inches to a depth of 60 inches
Shrink-swell potential: Bete Grise—moderate; Tawas—low
Permeability: Bete Grise—very rapid; Tawas—moderately rapid
Flooding: None
Depth to seasonal high water table: Bete Grise—0.5 foot to 6.7 feet (April, May); Tawas—at the surface (January, February, March, April, May, June, October, November, December)
Months in which ponding does not occur: Tawas—January, February, July, August, September, December
Depth and most likely period of ponding: Tawas—0.2 foot (March, April, May, June, October, November); Bete Grise—none

Use and Management

Land use: Major use—woodland; other use—wildlife habitat

Woodland
Major management concerns: Bete Grise—rock fragments, seedling mortality, windthrow hazard, seasonal wetness; Tawas—seedling mortality, windthrow hazard, excess humus, low strength

Building site development
Major management concerns: Bete Grise—surface stones, cutbanks caving, seasonal wetness; Tawas—cutbanks caving, ponding, wetness, low strength

Septic tank absorption fields
Major management concerns: Bete Grise—surface stones, poor filtering capacity, wetness; Tawas—surface stones, poor filtering capacity, ponding, low strength, wetness

Interpretive Groups

Land capability classification: Bete Grise—4w; Tawas—6w
Michigan soil management group: Bete Grise—M/4c; Tawas—Gbc
Prime farmland category: Not prime farmland
Hydric soil status: Bete Grise—not hydric; Tawas—hydric
Forest habitat type: Bete Grise—TMC-D; Tawas—TTM

301—Udorthents-Udipsamments, nearly level to very steep

Setting

Landform: Borrow areas, filled land, mine spoil, road cuts, and rail cuts on outwash plains, lake plains, and moraines

Map Unit Composition

Major components:
Udorthents and similar soils: 40 to 60 percent
Udipsamments and similar soils: 40 to 45 percent

Typical Profile

Udorthents
C—0 to 80 inches; gravelly sandy loam

Udipsamments
C—0 to 80 inches; sand

Use and Management

Land use: Major uses—source of cut and fill for construction sites; other uses—idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

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

302—Histosols and Aquents, ponded

Setting

Landform: Marshes, bogs, swamps, and edges of lakes on outwash plains and lake plains; depressions on moraines

Map Unit Composition

Major components:
Histosols and similar soils: 40 to 60 percent
Aquents and similar soils: 40 to 60 percent

Minor components:
Water (0 to 3 percent of the map unit)
Tawas and similar soils (0 to 3 percent of the map unit) in the slightly higher landscape positions

Typical Profile

Histosols
Oa—0 to 51 inches; black muck
C—51 to 80 inches; variable

Aquents
C—0 to 80 inches; variable

Use and Management

Land use: Major use—wildlife habitat; other uses—idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

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

303—Aquents and Dumps, stamp sand

Setting

Landform: Marshes, bogs, swamps, and edges of lakes on outwash plains and lake plains; depressions on moraines

Map Unit Composition

Major components:
Aquents and similar soils: 40 to 65 percent
Dumps, stamp sand: 25 to 35 percent

Minor components:
Tawas and similar soils (0 to 10 percent of the map unit) in the slightly higher landscape positions
Water (0 to 7 percent of the map unit)

Use and Management

Land use: Major uses—idle land; other use—wildlife habitat
Note: Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: None assigned
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Aquents—hydric; Dumps—not hydric
Forest habitat type: None assigned

310—Dumps, mine

Map Unit Composition

Major components:
Dumps, mine: 100 percent

General Definition

- This map unit occurs as areas of waste material from mining activities.

Use and Management

Land use: Major use—idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

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

311—Dumps, stamp sand

Map Unit Composition

Major components:
Dumps, stamp sand: 100 percent

General Definition

- This map unit occurs as areas of crushed waste material from mining activities.

Use and Management

Land use: Major use—idle land; other use—source of material for roads and building site development
Note: Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: None assigned
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric
Forest habitat type: None assigned

312—Pits, borrow

Map Unit Composition

Major components:
Pits, borrow: 100 percent

Use and Management

Land use: Major use—source of borrow material; other use—idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

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

313—Dumps, sawdust

Map Unit Composition

Major components:
Dumps, sawdust: 100 percent

General Definition

- This map unit occurs as areas of waste material from sawmills.

Use and Management

Land use: Major use—idle land
Note: Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

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

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment. 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,* and *poor*.

Numerical Ratings

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

Crops and Pasture

In this section, general management needed for crops and pasture is suggested, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service, the Conservation District, or Michigan State University Extension or from a certified planning professional.

The following paragraphs describe the concerns affecting management of the soils in the survey area for agriculture. These concerns include water erosion, soil blowing, seasonal wetness, seasonal droughtiness, soil fertility, and tilth in the surface layer.

Water erosion and soil blowing are major management concerns on most of the cropland in the survey area. The loss of the surface layer through erosion is especially damaging on soils that have a loamy subsoil, such as Munising, Skanee, and Gay soils, and on soils that tend to be droughty, such as Rubicon and Deer Park soils. Erosion on cropland results in the sedimentation of streams and ditches. Controlling erosion minimizes this pollution and improves the quality of water for municipal and recreational uses and for fish and wildlife.

Water erosion is a serious hazard on all loamy soils that have slopes of 4 percent or more. Preparing a good seedbed is difficult on some of the soils because the friable surface layer has been eroded away in places.

Erosion-control practices provide a protective cover, reduce the runoff rate, and increase the rate of water infiltration. A cropping system that keeps a plant cover on the surface for extended periods reduces the susceptibility to erosion and preserves the productive capacity of the soil. On livestock farms, where pasture and hay are needed, including forage crops of grasses and legumes in the cropping sequence helps to control erosion in the more sloping areas, provides nitrogen for subsequent crops, and improves tilth. Conservation tillage helps to control runoff and erosion by leaving a protective cover of crop residue on the surface. Cover crops, diversions, and grassed waterways also help to control erosion.

Soil blowing is a hazard on the coarse textured, sandy soils in the survey area. An adequate plant cover, surface mulch, buffer strips, and tillage methods that leave crop residue on the surface help to control soil blowing. No-till farming, which is increasingly common in the county, is effective in controlling water erosion and soil blowing because it leaves crop residue on the surface. This method is suited to most of the soils in the county. When no-till farming methods are applied, eroding areas that otherwise are only marginally productive can become more productive.

No-till helps to maintain the productive capacity of nearly all cropland. In areas where no-till crops are grown, different methods of planting and of controlling insects and weeds are needed. Planting at the proper time, selecting herbicides that are suited to the existing vegetation, providing an adequate supply of plant nutrients, and selecting tillage systems based on soil characteristics are important management requirements.

Much of the permanent pasture in the county is in areas where erosion is a hazard. Control of erosion is particularly important when the pasture is seeded. Forage production and the extent to which the plant cover protects the surface of the soil are influenced by the number of livestock that the pasture supports, the length of time that they graze, and the distribution of rainfall. Good pasture management includes stocking rates that maintain the key forage species, weed control, lime and fertilizer, pasture rotation, deferred grazing, timely grazing, and the strategic placement of water supplies for livestock.

Information about the design and application of erosion-control practices for different soils is available in local offices of the Conservation Districts.

Seasonal wetness is a major management concern in many areas used for crops and pasture. Drainage of cropland improves the air-water relationship in the root zone. In areas where drainage is poor, spring planting, spraying, and harvesting are delayed and controlling weeds is difficult. Properly designed subsurface drainage systems or surface drainage systems, or both, can be used to remove excess water.

Unless they are drained, some soils are naturally so wet that they cannot be used for the crops commonly grown in the county. In undrained areas, very poorly drained, poorly drained, and somewhat poorly drained soils are so wet that crops are damaged in most years. Gay, Sabattis, Skanee, and Gratiot soils are examples of poorly drained and somewhat poorly drained soils. Natural drainage is good most of the year in the moderately well drained Munising, Yalmer, and Croswell soils, but water tends to perch in these soils, and they dry slowly after rains. Small areas of the wetter soils along drainageways and in swales are commonly mapped as inclusions in some areas of these soils, especially where slopes are 0 to 12 percent. Artificial drainage is needed to maximize crop production in these areas.

The design of surface and subsurface drainage systems varies with the kind of soil. A combination of surface drainage and subsurface drainage is needed in most areas of poorly drained soils that are intensively cropped. The drains should be more closely spaced in soils that are moderately slowly to very slowly permeable than in the more permeable soils. Finding adequate outlets for subsurface drainage systems is difficult in many areas of Gay and Sabattis soils. Diversions can be used to remove surface runoff from some wet areas. Good soil tilth and an ample supply of organic matter also improve drainage. In low-lying areas the growing season is shortened by frost in the late spring and early fall.

If drainage is planned, care must be taken so that designated wetlands are not affected. Drainage of these areas could violate existing laws and regulations and may jeopardize receipt of USDA benefits. Information about the design of drainage systems and wetland compliance is available in local offices of the Natural Resources Conservation Service.

Seasonal droughtiness during dry periods is a concern affecting the management of some soils, including Abbaye, Dishno, Arcadian, and Burt soils. Moisture can be conserved by no-till farming and other kinds of conservation tillage, which leave all or part of the crop residue on the surface. Increasing the content of organic matter improves the available water capacity. Irrigation improves productivity. The droughty soils and many other soils in the county are suited to irrigation if they are properly managed.

Soil tilth is an important factor affecting the germination of seeds and the infiltration of water into the soil. Some of the soils used for crops have a coarse textured surface layer. Generally, the structure of such soils is weak. Regular additions of crop residue, manure, and other organic materials can improve tilth. Maintaining good tilth is difficult in the coarse soils, such as Gay, Skanee, Assinins, and Munising soils, because these soils stay wet or have a perched water table until late spring. If the soils are plowed when wet, they can become compacted. As a result, preparing a good seedbed is difficult. Cover crops, green manure crops, proper management of crop residue, conservation tillage, and applications of livestock manure help to maintain or improve tilth and the content of organic matter. Fall plowing and chisel plowing while the soils are at the proper moisture content can help to prevent deterioration of tilth in areas of nearly level, poorly drained or somewhat poorly drained soils. These practices also allow the soils to be tilled earlier the following spring. Fall plowing is not suitable, however, on sloping soils or on soils that are subject to soil blowing. Good management is needed in intensively cropped areas and in areas that are cultivated year after year.

Allowing grazing by livestock during periods when the soils are wet results in soil compaction and poor tilth. The compaction caused by grazing during wet periods retards the growth of pasture plants. Proper harvesting methods, such as those for hay or silage, increase plant growth and help to prevent compaction.

Soil fertility is naturally medium or high in the loamy and coarse soils and low in most of the sandy soils on uplands. Many sandy soils naturally range from strongly acid to slightly acid. If lime has never been applied on these soils, applications of ground limestone are needed to raise the pH level sufficiently for good growth of alfalfa and other crops that grow well only in areas where reaction in the soils is nearly neutral. Available phosphorus and potash levels are naturally low or medium in most of these 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 (Michigan State University, 1985). The commonly grown crops that are suited to the soils and climate in Keweenaw County include rye, barley, and oats. Alfalfa, alone or in mixtures of clover and grasses, is the most common hay crop.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management (USDA, 1961). The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of map units in this survey area is given in the section “Detailed Soil Map Units” and under the heading “Interpretive Groups.”

Also under the heading “Interpretive Groups” and in each map unit description, the Michigan soil management group is listed. The soils in each map unit are assigned to a group according to the dominant texture, the drainage class, and the major management concerns (Mokma, 1982). More detailed information about these groups is available from the local office of the Michigan State University Cooperative Extension Service.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the country has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

None of the soils in Keweenaw County have been designated as prime farmland.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation (fig. 15), hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 2003) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

2—Lupton and Tawas soils, 0 to 1 percent slopes
3—Dawson and Loxley soils, 0 to 1 percent slopes
6—Skandia-Burt complex, 0 to 2 percent slopes
10—Cathro-Sabattis complex, 0 to 2 percent slopes, stony
13—Tawas-Deford complex, 0 to 4 percent slopes
302—Histosols and Aquents, ponded
303—Aquents and Dumps, stamp sand

Figure 15.—Marsh vegetation in a typical area of Cathro-Sabattis complex, 0 to 2 percent slopes, stony.

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

15B—Dawson-Croswell complex, 0 to 8 percent slopes
125A—Croswell-Au Gres complex, 0 to 3 percent slopes
126B—Au Gres-Deford-Croswell complex, 0 to 6 percent slopes
127A—Au Gres-Kinross complex, 0 to 3 percent slopes
136B—Borgstrom-Ingalls complex, 0 to 6 percent slopes
166B—Gratiot-Sabattis complex, 0 to 4 percent slopes, rocky, very bouldery
173C—Montreal-Paavola-Dishno complex, dissected, 1 to 12 percent slopes, very rocky, very bouldery
173E—Montreal-Paavola-Dishno complex, dissected, 8 to 35 percent slopes, very rocky, very bouldery
174B—Montreal-Dishno-Gratiot complex, 0 to 8 percent slopes, rocky, very bouldery
177A—Assinins sand, 0 to 4 percent slopes
185B—Munising-Skanee complex, dissected, 1 to 8 percent slopes
185C—Munising-Skanee complex, dissected, 4 to 18 percent slopes
187A—Skanee-Gay complex, 0 to 3 percent slopes
195B—Copper Harbor-Bete Gris complex, 0 to 4 percent slopes, stony
196B—Bete Grise-Tawas complex, 0 to 4 percent slopes, stony

Woodland Productivity and Management

The tables described in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management. Questions relating to forestland management practices and solutions to the soil concerns affecting forestland should be referred to the local Soil Conservation District or private consulting forestry professionals.

In table 5, the *potential productivity* of merchantable or *common* trees on a soil is expressed as a *site index* and as a *volume* number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Suggested trees to plant are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices in table 5. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Ratings in the column *erosion hazard* are based on the soil erosion factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for site preparation* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

The column *windthrow hazard* rates the likelihood that trees will be uprooted by wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Table 6 provides expanded information concerning the operability of harvesting equipment. The table gives information about operating harvesting or thinning equipment in logging areas and on skid roads, log landings, and haul roads. Limitations are given for the most limiting season and for the preferred operating season. The most limiting season in this survey area generally is spring or late fall. In some areas, however, it is during dry periods in summer, when loose sand can limit trafficability on deep, excessively drained, sandy soils.

The preferred operating season is the period when harvesting or thinning causes the least amount of soil damage. This period generally is when the soil is not too wet or when the ground is frozen or partly frozen or has an adequate snow cover.

For limitations affecting construction of *haul roads*, the ratings are based on slope, flooding, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The soils are described as well suited, moderately suited, and poorly suited. A rating of *well suited* indicates that no significant limitations affect construction activities, *moderately suited* indicates that one or more limitations can cause some difficulty in construction, and *poorly suited* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of suitability for *log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *logging areas and skid trails* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Forest Habitat Types

The information in this section is derived from a field guide developed for the Upper Peninsula of Michigan and for northeastern Wisconsin (Coffman and others, 1983). The system of habitat classification used in the guide is based on the concept that plants occur in predictable patterns or communities and that these communities reflect differences in site characteristics.

Besides identifying the various habitat types by means of vegetative keys, the guide also provides information about the different possible successional stages for most of the habitat types. The successional stages depend largely on how the forest has been disturbed. They include the succession after logging in the original climax stands, the succession after logging in second-growth stands, and the succession in stands that have been both logged and burned.

The guide gives the suggested forest management for each of the successional stages. This management includes methods of thinning and harvest, site preparation, and measures that improve regeneration of the stands. The potential productivity, in terms of a site index and the mean annual volume in cubic feet per acre per year, is given for most of the habitat types. The development of the descriptive or interpretive information for some of the habitat types, however, is based on limited data and thus should be used with caution.

Habitat types have been determined for each map unit in the survey area. The primary habitat type is the one that is most common for the map unit. The secondary habitat type is less common. Habitat types are given at the end of the descriptions in the section “Detailed Soil Map Units.” They also are listed in the section “Interpretive Groups,” which follows the tables at the back of this survey.

The following paragraphs describe the habitat types in the survey area. They provide information about the potential climax species, some of the common understory species, and, if known, the potential productivity of the habitat type.

AQVac—Acer-Quercus-Vaccinium habitat type. This habitat type has a potential climax overstory dominated by red maple and red oak. Other species include eastern hemlock, white pine, balsam fir, and white spruce. The dominant ground flora includes lowbush blueberry, Canada blueberry, brackenfern, wintergreen, bigleaf aster, and hazelnut. The potential productivity is moderately low for northern hardwoods, moderate for aspen, and moderately high for red pine and jack pine.

ATD—Acer-Tsuga-Dryopteris habitat type. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. Yellow birch, red maple, and American elm are in some areas. The dominant ground flora includes spinulose woodfern, twistedstalk, hairy Solomon’s seal, scarlet alder, and Canada mayflower. The potential productivity is moderately high for northern hardwoods and high for aspen. The potential productivity for red pine plantations is high if plant competition is controlled.

ATD-CI—Acer-Tsuga-Dryopteris habitat type, Circaea-Impatiens phase. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. Yellow birch, red maple, and American elm are in some areas. The dominant ground flora includes spinulose woodfern, rosy twistedstalk, Solomon’s seal, scarlet alder, Canada mayflower, jewelweed, and alpine circaea. The potential productivity is moderately high for northern hardwoods and high for aspen. The potential productivity for red pine plantations is high if plant competition is controlled.

ATD-D—Acer-Tsuga-Dryopteris habitat type, Dryopteris phase. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock and American basswood. Yellow birch, red maple, and American elm are in some areas. The dominant ground flora includes spinulose woodfern, rosy twistedstalk, Solomon’s seal, scarlet alder, and Canada mayflower. The potential productivity is moderately high for northern hardwoods and high for aspen. The potential productivity for red pine plantations is high if plant competition is controlled.

AVO—Acer-Viola-Osmorhiza habitat type. This habitat type has a potential climax overstory dominated by sugar maple. Other species include eastern hemlock, American basswood, white ash, yellow birch, eastern hophornbeam, eastern hemlock, and American elm. The dominant ground flora includes Canada white violet, sweet cicely, spinulose woodfern, common ladyfern, hairy Solomon's seal, and rosy twistedstalk. The potential productivity is high for northern hardwoods and aspen. It also is high for red pine plantations if plant competition is controlled.

AVO-CI—Acer-Viola-Osmorhiza habitat type, Circaea-Impatiens phase. This habitat type has a potential climax overstory dominated by sugar maple. Other species include American basswood, white ash, yellow birch, eastern hophornbeam, eastern hemlock, and American elm. The dominant ground flora includes Canada white violet, sweet cicely, spinulose woodfern, ladyfern, Solomon's seal, rosy twistedstalk, jewelweed, and alpine circaea. The potential productivity is high for northern hardwoods and aspen. It is high for red pine plantations if plant competition is controlled.

FI—Fraxinus-Impatiens habitat type. This habitat type has a potential climax overstory dominated by white ash and red maple. Other species include sugar maple, black ash, and balsam fir. The dominant ground flora consists of spotted touchmenot, sedge, alpine circaea, spinulose woodfern, common ladyfern, scarlet alder, and field mint. The potential productivity for northern hardwoods is moderate.

FMC—Fraxinus-Mentha-Carex habitat type. This habitat type has a potential climax overstory dominated by black ash and American elm. Other species include red maple and balsam fir. The dominant ground flora consists of sedge, field mint, speckled alder, and spotted touchmenot.

PCS—Picea-Chamadaphne-Sphagnum habitat type. This habitat type has a potential climax overstory dominated by black spruce. Other species include tamarack and northern whitecedar. The dominant ground flora consists of leatherleaf, bog rosemary, pale laurel, sphagnum, Labrador tea, sedge, and Canada blueberry.

PVC—Pinus-Vaccinium-Carex habitat type. This habitat type has a potential climax overstory dominated by jack pine. Other species include red pine, black spruce, and white pine. The dominant ground flora consists of sedge, low sweet blueberry, sweet fern, juneberry, Canada mayflower, and spinulose woodfern.

QAE—Quercus-Acer-Epigea habitat type. This habitat type has a potential climax overstory dominated by red oak and red maple. Other species include white spruce and white pine. The dominant ground flora consists of brackenfern, trailing arbutus, wintergreen, lowbush blueberry, mosses, and Canada blueberry. The potential productivity is moderately low for aspen and moderate for red pine and jack pine.

TM—Tsuga-Maianthemum habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock, sugar maple, and red maple. Other species include yellow birch, white spruce, balsam fir, white pine, red oak, northern whitecedar, and American basswood. The dominant ground flora includes Canada mayflower, brackenfern, sedge, American starflower, and wild sarsaparilla. The potential productivity is moderate for northern hardwoods, moderately high for aspen, and high for red pine and jack pine.

TMC—Tsuga-Maianthemum-Coptis habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Sugar maple and yellow birch are common. Balsam fir, white spruce, and northern whitecedar are in some stands. The dominant ground flora consists of Canada mayflower, goldthread, yellow beadlily, bunchberry dogwood, American starflower, and spinulose woodfern. The potential productivity for northern hardwoods is moderate.

TMC-D—Tsuga-Maianthemum-Coptis habitat type, Dryopteris phase. This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Sugar maple and yellow birch are common. Other species include balsam fir, white spruce, and northern whitecedar. The dominant ground flora consists of long beechfern, oakfern, and Solomon's seal. The potential productivity is moderate for northern hardwoods and aspen.

TMC-Vac—Tsuga-Maianthemum-Coptis habitat type, Vaccinium phase. This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Sugar maple and yellow birch are common. Other species include balsam fir, white spruce, and northern whitecedar. The dominant ground flora consists of Canada mayflower, goldthread, yellow beadlily, bunchberry dogwood, American starflower, Canada blueberry, lowbush blueberry, and spinulose woodfern. The potential productivity is moderate for northern hardwoods and aspen.

TMV—Tsuga-Maianthemum-Vaccinium habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock and red maple. Other species include sugar maple, white pine, balsam fir, and white spruce. Red oak is in some stands. The dominant ground flora includes Canada blueberry, wild sarsaparilla, brackenfern, Canada mayflower, lowbush blueberry, yellow beadlily, and wood betony. The potential productivity is moderate for northern hardwoods, moderately high for aspen, and high for red pine and jack pine.

TTM—Tsuga-Thuja-Mitella habitat type. This habitat type has a potential climax overstory dominated by northern whitecedar and eastern hemlock. Other species include balsam fir and red maple. The dominant ground flora includes sphagnum, naked miterwort, twinflower, goldthread, bunchberry dogwood, sedge, Canada mayflower, American starflower, and fringed polygala.

TTS—Tsuga-Thuja-Sphagnum habitat type. This habitat type has a potential climax overstory dominated by eastern hemlock and northern whitecedar. Other species include balsam fir and black spruce. Red maple is in some stands. The dominant ground flora includes sphagnum, goldthread, bunchberry dogwood, sedge, Canada mayflower, American starflower, and wood sorrel.

Plant Communities on Selected Soils

Table 7 lists the common trees and characteristic vegetation typically associated with selected soils in the survey area. The common plant names and the plant symbols are those on a national list of plant names (USDA/NRCS, PLANTS database).

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 8 shows the height that locally grown trees and shrubs are expected to reach in 20 years on soils in the survey area. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources

Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Recreation

Recreation is a major land use in Keweenaw County. Much of the land in the county is used for nonintensive recreational purposes, such as fishing, hunting, canoeing, camping, hiking, and sightseeing (fig. 16). Winter activities include cross-country and downhill skiing and snowmobiling. Many areas are developed for intensive recreational uses, such as parks, campgrounds, and picnic areas. Because of an expanding population and increasing amounts of leisure time, more land is likely to be converted to various types of recreational areas.

Figure 16.—The Eagle River Falls are among the many scenic areas in Keweenaw County.

The soils of the survey area are rated in tables 9a and 9b 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 9a and 9b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Keweenaw County has a variety of wildlife. The principal species are white-tailed deer, black bear, moose, coyote, gray wolf, gray squirrel, fox squirrel, cottontail rabbit, snowshoe hare, bobcat, ruffed grouse, and various other birds. Many lakes and streams in the county provide good fishing for trout, northern pike, walleye, smallmouth bass, and a variety of other game fish. Habitat for wildlife in the county ranges from farmland to northern hardwood climax forests. Much of the habitat can be improved by establishing more water areas and by increasing the extent of vegetation that provides a variety of food and cover.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, 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 fescue, orchardgrass, bromegrass, clover, and alfalfa.

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

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, apple, beech, dogwood, and hazelnut. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, blueberry, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wild rice, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

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

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include sandhill cranes, sharptail grouse, meadowlark, marsh hawk, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

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

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

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

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of 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. Construction activities on building sites may be regulated by local, State, and Federal laws. All necessary permits should be obtained before construction begins. Questions about management practices and solutions relating to the various soil concerns affecting building should be referred to the appropriate local permitting or regulatory officials.

Tables 11a and 11b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and shallow excavations.

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

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

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Sanitary Facilities

The construction of sanitary facilities may be regulated by local, State, and Federal laws. All necessary permits should be obtained before construction begins. Questions relating to management practices and solutions applicable to the soil concerns affecting sanitary facilities should be referred to the appropriate local permitting official, health department, building and zoning office, or regulatory officials.

Tables 12a and 12b 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 water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to soil blowing.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 13a and 13b give information about the soils as potential sources of reclamation material, roadfill, topsoil, gravel, and sand. Normal compaction, minor processing, and other standard construction practices are assumed.

In table 13a, the soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place.

The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Gravel and *sand* 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 13b, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

Water Management

Tables 14a and 14b give information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for grassed waterways; drainage; 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).

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A hazard of soil blowing, low available water capacity, restricted rooting depth, toxic substances such as salts, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or to other layers that affect the rate of water movement; permeability; depth to a zone in which the soil moisture status is wet or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts. Availability of drainage outlets is not considered in the ratings.

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

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

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

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

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

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

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

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

Engineering Index Properties

Table 15 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

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

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

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

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

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

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

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

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

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

Physical Properties

Table 16 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (Ksat) refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

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

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

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

Erosion factors are shown in table 16 as the K factor (K 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 Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

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

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the “National Soil Survey Handbook” (USDA/NRCS, National Soil Survey Handbook).

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

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

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 17, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

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

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 18 gives estimates of soil moisture for each component of a map unit at various depths for every month of the year. The depths displayed are representative values that are indicative of conditions that occur most commonly. These representative values of dry, moist, and wet can vary greatly from month to month and from year to year. *Dry* indicates a moisture condition under which most plants (especially crops) cannot extract water for growth. *Moist* indicates a moisture condition under which soil water is most readily available for plant growth. *Wet* indicates a condition under which water will stand in an unlined hole or at least a condition under which the soil is too wet for the growth of most agricultural species. A moisture status of 4.0-6.7 (wet) indicates that most of the time the component is saturated at some depth between 4.0 feet and 6.7 feet during the month designated. In some years the soil may be saturated at a depth of less than 4.0 feet or more than 6.7 feet; however, field observations indicate that the soil will be saturated between these depths in most years. In the summer, the soil may show the effects of drying plus intermittent rains that result in a moist or wet layer over a dry layer that gets moist or wet again.

Table 19 gives estimates of additional water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms (fig. 17).

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained

Figure 17.—Spring runoff in an area of Montreal-Paavola-Dishno complex, dissected, 8 to 35 percent slopes, very rocky, very bouldery.

soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 19 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

The table also shows the *kind of water table*, that is, perched or apparent. An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 19 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

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

Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Characterization Data for Selected Soils

Some of the major soils in Keweenaw County were sampled by the Soil Survey Laboratory at the National Soil Survey Center in Lincoln, Nebraska. The laboratory data obtained from the soil samples included analyses of particle-size distribution, rock fragments, bulk density, and moisture retention. Complete chemical analyses also were performed on each sample, and spodic horizon criteria were tested on the appropriate samples. Standard procedures of the National Cooperative Soil Survey were used for all analyses (USDA/NRCS, 2004).

These data were used in classifying and correlating the soils and in evaluating their behavior, especially under forestry uses. Several pedons were selected as representative of their series, and some were sampled for their unique characteristics. These pedons and their laboratory identification numbers are as follows: Bete Grise (S01MI-083-002), Betsy Bay (S00MI-083-003), Copper Harbor (S01MI-083-001), Lac La Belle (S01MI-083-001), Montreal (S00MI-083-002), and Trimountain (S00MI-083-001).

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 21 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 Aquods (*Aqu*, meaning water, 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 Endoaquods (*Endo*, meaning within, plus *aquod*, the suborder of the Spodosols that has an aquic moisture regime).

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

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 sandy, mixed, frigid Typic Endoaquods.

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. More information about the soil series in Keweenaw County, including the range of important characteristics of the soils in the series, is available in the Official Soil Series Descriptions (OSDs) at http://soils.usda.gov.

Abbaye Series

The Abbaye series consists of moderately deep, moderately well drained soils on ground moraines underlain by sandstone. These soils formed in loamy till. Permeability is moderate. Slopes range from 1 to 35 percent.

Typical pedon of Abbaye sandy loam (fig. 18), 1,200 feet south and 2,550 feet west of the northeast corner of sec. 33, T. 52 N., R. 33 W., Baraga Township, Baraga County, Michigan:

Oi—0 to 2 inches; recent hardwood litter.

A—2 to 4 inches; dark reddish brown (5YR 2/2) sandy loam, gray (5YR 5/1) dry; weak fine granular structure; friable; many roots; about 5 percent pebbles; very strongly acid; abrupt smooth boundary.

E—4 to 11 inches; brown (7.5YR 5/2) loamy sand; weak medium subangular blocky structure; friable; many roots; about 5 percent pebbles; strongly acid; clear irregular boundary.

Bs1—11 to 16 inches; dark reddish brown (5YR 3/4) sandy loam; moderate medium subangular blocky structure; friable; few roots; few fragments of strongly cemented ortstein; about 5 percent pebbles; strongly acid; clear irregular boundary.

Bs2—16 to 23 inches; reddish brown (5YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; few roots; about 5 percent pebbles; moderately acid; clear wavy boundary.

B/E´—23 to 30 inches; dark reddish brown (2.5YR 3/4) sandy loam (Bt) that has reddish brown (5YR 5/3) loamy sand (E´) coatings on peds; weak coarse subangular blocky structure; firm; about 5 percent pebbles; moderately acid; abrupt smooth boundary.

2R—30 inches; sandstone bedrock.

Alcona Series

The Alcona series consists of very deep, well drained soils on lake plains, till plains, and stream terraces. These soils formed in loamy and sandy deposits. Permeability is moderate. Slopes range from 1 to 35 percent.

Typical pedon of Alcona loamy fine sand, 2,100 feet west and 100 feet north of the southeast corner of sec. 11, T. 48 N., R. 36 W., Duncan Township, Houghton County, Michigan:

A—0 to 3 inches; dark reddish brown (5YR 3/2) loamy fine sand, pinkish gray (5YR 6/2) dry; moderate fine granular structure; friable; many roots; very strongly acid; abrupt smooth boundary.

E—3 to 6 inches; pinkish gray (5YR 6/2) loamy fine sand; weak thin platy structure; friable; common roots; strongly acid; abrupt wavy boundary.

Bhs—6 to 7 inches; dark reddish brown (5YR 3/3) loamy fine sand; weak fine subangular blocky structure; friable; common roots; very strongly acid; clear wavy boundary.

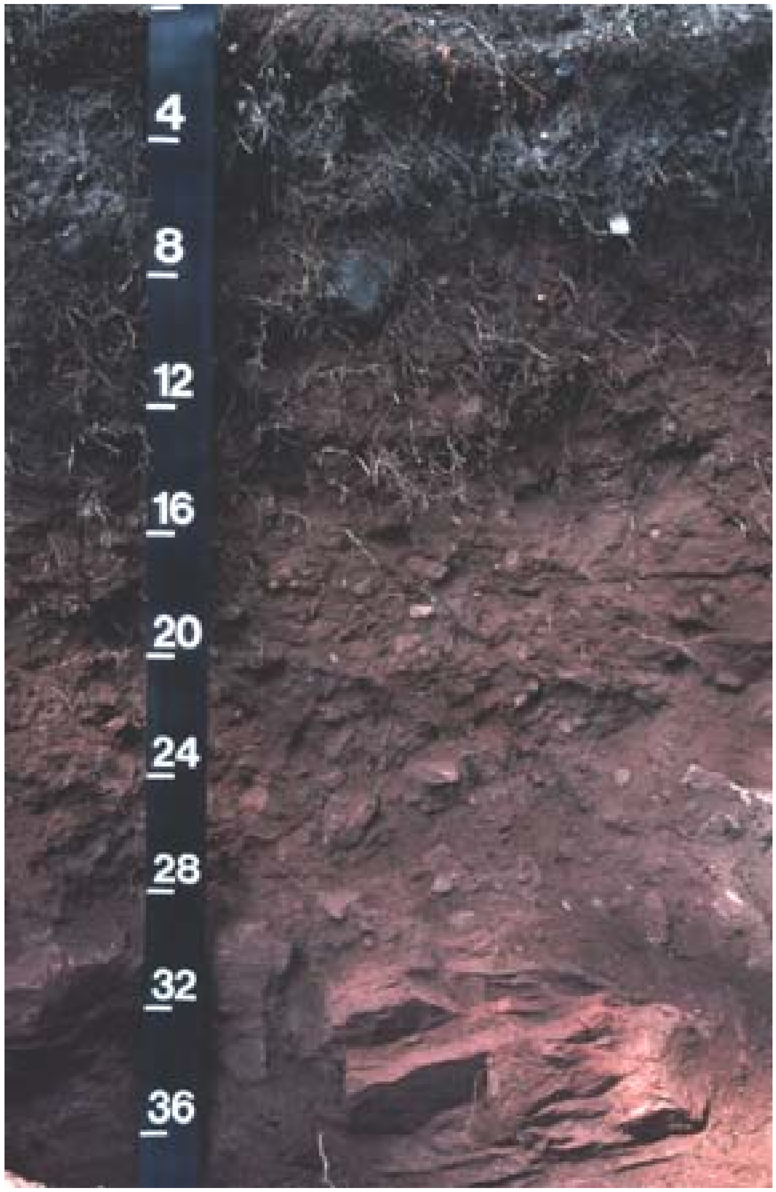


Figure 18.—Typical profile of an Abbaye soil. Bedrock is at a depth of 20 to 40 inches. Depth is marked in inches.

Bs1—7 to 11 inches; dark reddish brown (5YR 3/4) loamy fine sand; weak fine subangular blocky structure; friable; common roots; strongly acid; clear wavy boundary.

Bs2—11 to 19 inches; reddish brown (5YR 4/4) loamy fine sand; weak fine subangular blocky structure; friable; few roots; moderately acid; clear wavy boundary.

E&Bt—19 to 48 inches; reddish brown (5YR 5/4) loamy fine sand (E); weak thin platy structure parting to weak fine subangular blocky; friable; lamellae of reddish brown (7.5YR 4/4) fine sandy loam (Bt); weak fine subangular blocky structure; friable; few distinct clay films on faces of peds; few roots; moderately acid; gradual wavy boundary.

C—48 to 80 inches; stratified, reddish brown (5YR 5/3) fine sand, loamy fine sand, and fine sandy loam; massive; very friable; neutral.

Arcadian Series

The Arcadian series consists of shallow, well drained, moderately permeable soils on rocky knolls and ridges, on moraines, on till plains, and on postglacial lake shorelines. These soils formed in gravelly or cobbly loamy material overlying igneous or metamorphic bedrock. Slopes range from 0 to 90 percent.

Typical pedon of Arcadian very gravelly very fine sandy loam, 2,180 feet north and 250 feet east of the southwest corner of sec. 31, T. 59 N., R. 29 W., Eagle Harbor Township, Keweenaw County, Michigan; USGS Delaware 7.5-minute topographic quadrangle; lat. 47 degrees 27 minutes 58 seconds N. and long. 87 degrees 55 minutes 15 seconds W.

Oa—0 to 3 inches; black (7.5YR 2.5/1), well decomposed forest litter.

E—3 to 5 inches; dark brown (7.5YR 4/2) very gravelly very fine sandy loam, gray (7.5YR 5/1) dry; moderate medium granular structure; friable; many fine and medium and common coarse roots; 45 percent gravel, 5 percent cobbles, and 1 percent stones; strongly acid, abrupt wavy boundary.

Bhs—5 to 12 inches; dark reddish brown (7.5YR 3/3) very gravelly very fine sandy loam; moderate medium subangular blocky structure; friable; many fine, common medium, and few coarse roots; 50 percent gravel, 5 percent cobbles, and 1 percent stones; strongly acid; abrupt wavy boundary.

2R—12 inches; conglomerate bedrock.

Arnheim Series

The Arnheim series consists of deep, poorly drained, moderately permeable soils on flood plains. These soils formed in stratified alluvium. Permeability is moderate. Slopes are 0 to 1 percent.

Typical pedon of Arnheim mucky silt loam, 2,000 feet west and 125 feet north of the southeast corner of sec. 2, T. 51 N., R. 34 W., Baraga Township, Baraga County, Michigan:

A—0 to 5 inches; dark brown (7.5YR 3/2) mucky silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; many roots; moderately acid; clear smooth boundary.

Cg—5 to 10 inches; dark grayish brown (10YR 4/2) silt loam; many coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation; moderate medium subangular blocky structure; friable; many roots; moderately acid; clear smooth boundary.

C1—10 to 15 inches; reddish brown (5YR 4/3) very fine sandy loam; many coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation; massive; firm; common roots; moderately acid; abrupt smooth boundary.

C2—15 to 24 inches; reddish brown (5YR 4/3) silt loam; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; massive; firm; few roots; moderately acid; abrupt smooth boundary.

C3—24 to 60 inches; reddish brown (5YR 4/3), stratified loamy fine sand, very fine sandy loam, and fine sandy loam; massive; friable; strongly acid.

Assinins Series

The Assinins series consists of deep, somewhat poorly drained soils on till plains and moraines. These soils formed in sandy and loamy glacial till. Permeability is rapid in the upper part of the profile, moderately slow or moderate in the next part, and moderate in the lower part. Slopes range from 0 to 4 percent.

Typical pedon of Assinins sand, 660 feet north and 50 feet east of the center of sec. 17, R. 51 N., R. 33 W., Baraga Township, Baraga County, Michigan:

Oe—0 to 2 inches; black (5YR 2/1), partially decomposed leaf litter; strong medium granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

E—2 to 8 inches; brown (7.5YR 5/2) sand; many medium faint dark grayish brown (10YR 4/2) and light brownish gray (10YR 6/2) masses of iron accumulation; weak fine subangular blocky structure parting to weak medium granular; very friable; many fine and medium roots; about 5 percent pebbles; very strongly acid; abrupt wavy boundary.

Bs1—8 to 13 inches; reddish brown (5YR 4/3) sand; weak fine subangular blocky structure parting to weak medium granular; very friable; common fine and medium roots; about 5 percent pebbles; strongly acid; abrupt wavy boundary.

Bs2—13 to 22 inches; brown (7.5YR 4/4) sand; common fine distinct strong brown (7.5YR 5/6) and many medium distinct yellowish brown (10YR 5/4) masses of iron accumulation; weak fine subangular blocky structure; very friable; common fine roots; about 5 percent pebbles; strongly acid; abrupt wavy boundary.

2B/E—22 to 31 inches; reddish brown (2.5YR 4/4) sandy clay loam (Bt) that has pinkish gray (5YR 6/2) loamy sand (E) on the faces of peds; many medium distinct strong brown (7.5YR 5/6 and 5/8) masses of iron accumulation; weak medium subangular blocky structure; firm; few fine roots; common pores; reddish brown (5YR 5/3) clay films in pores; about 5 percent pebbles; moderately acid; clear wavy boundary.

2C—31 to 60 inches; reddish brown (2.5YR 4/4) sandy loam; few fine distinct pinkish gray (5YR 6/2) masses of iron accumulation; weak fine subangular blocky structure; friable; about 5 percent pebbles; moderately acid.

Au Gres Series

The Au Gres series consists of very deep, somewhat poorly drained, rapidly permeable soils on outwash plains, till-floored lake plains, and outwash terraces. These soils formed in sandy glaciofluvial and glaciolacustrine deposits. Slopes range from 0 to 6 percent.

Typical pedon of Au Gres sand, 2,550 feet north and 2,450 feet east of the southwest corner of sec. 30, T. 45 N., R. 24 W., Forsyth Township, Marquette County, Michigan; USGS Republic SW topographic quadrangle; lat. 46 degrees 16 minutes 51 seconds N. and long. 87 degrees 53 minutes 29 seconds W.

Oa—0 to 2 inches; black (N 2.5/0), well decomposed forest litter; moderate very fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.

E—2 to 8 inches; dark reddish gray (5YR 4/2) sand, pinkish gray (5YR 6/2) dry; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.

Bhs—8 to 11 inches; dark reddish brown (5YR 2.5/2) sand; strong fine subangular blocky structure; friable; many very fine to coarse roots; vertical tongues of dark reddish brown (5YR 3/2) and reddish brown (5YR 4/4) strongly cemented ortstein occupy 25 percent (10 of 40 inches) of the horizon; tongues are 2 to 4 inches wide and 5 to 16 inches apart and extend into the Bs1 horizon; common medium distinct yellowish red (5YR 5/6) masses of iron accumulation; about 1 percent gravel; strongly acid; clear irregular boundary.

Bs1—11 to 13 inches; dark reddish brown (5YR 3/4) sand; moderate fine subangular blocky structure; friable; many very fine to coarse roots; vertical tongues of dark reddish brown (5YR 3/2) and reddish brown (5YR 4/4) strongly cemented ortstein extend into the horizon from the Bhs horizon and occupy 30 percent (12 of 40 inches) of the horizon; tongues are 3 to 4 inches wide and 5 to 12 inches apart and extend into the Bs2 horizon to a depth of 24 inches; common fine distinct red (2.5YR 4/6) masses of iron accumulation; about 1 percent gravel; strongly acid; clear wavy boundary.

Bs2—13 to 27 inches; yellowish red (5YR 5/6) sand; weak medium subangular blocky structure; very friable; common very fine to medium roots; vertical tongues of reddish brown (5YR 4/4) and yellowish red (5YR 4/6) strongly cemented ortstein extend into the horizon from the Bs1 horizon and occupy 40 percent (16 of 40 inches) of the horizon; tongues are 4 to 6 inches wide and 3 to 4 inches apart; common medium faint yellowish red (5YR 5/8) masses of iron accumulation; about 1 percent gravel; strongly acid; gradual wavy boundary.

C—27 to 80 inches; brown (7.5YR 5/4) sand; single grain; loose; few very fine to medium roots; common fine faint strong brown (7.5YR 5/6) masses of iron accumulation; about 1 percent gravel; strongly acid.

Bete Grise Series

The Bete Grise series consists of very deep, somewhat poorly drained soils on glacial lake benches, stream terraces, and outwash plains underlain by gravelly sandy loam till. The upper part of the profile formed in cobbly, gravelly, and sandy deposits. The substratum formed in gravelly sandy loam till. Permeability is very rapid. Slopes range from 0 to 4 percent.

Typical pedon of Bete Grise very gravelly loamy sand, 1,196 feet west and 914 feet south of the northeast corner of sec. 5, T. 57 N., R. 32 W., Allouez Township, Keweenaw County, Michigan; USGS Ahmeek 7.5-minute topographic quadrangle; lat. 47 degrees 22 minutes 13.51 seconds N. and long. 88 degrees 23 minutes 18.73 seconds W.

Oa—0 to 2 inches; dark reddish brown (5YR 2.5/1), well decomposed forest litter; abrupt smooth boundary.

E—2 to 5 inches; dark reddish gray (5YR 4/2) very gravelly loamy sand, reddish gray (5YR 5/2) dry; moderate fine subangular blocky structure; friable; many very fine to coarse roots; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; 35 percent gravel, 10 percent cobbles; moderately acid; clear wavy boundary.

Bhs—5 to 17 inches; dark reddish brown (5YR 3/3) very gravelly loamy coarse sand; weak fine subangular blocky structure; friable; common very fine to medium and few coarse roots; few fine prominent yellowish red (5YR 4/6) masses of iron accumulation; dark reddish brown (5YR 3/3) moderately cemented ortstein; ortstein occupies 15 percent of the horizon; 30 percent gravel, 10 percent cobbles; moderately acid; gradual irregular boundary.

Bs1—17 to 26 inches; dark reddish brown (5YR 3/4) very gravelly coarse sand; weak medium subangular blocky structure; friable; common very fine and fine and few medium roots; dark reddish brown (5YR 3/3) moderately cemented ortstein; ortstein occupies 10 percent of the horizon; common fine prominent yellowish red (7.5YR 4/6) masses of iron accumulation; 30 percent gravel, 10 percent cobbles; moderately acid; gradual irregular boundary.

Bs2—26 to 32 inches; brown (7.5YR 4/4) extremely gravelly sand; weak medium subangular blocky structure; very friable; few very fine and fine roots; brown (7.5YR 4/4) ortstein occupies 5 of the horizon; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation; 60 percent gravel, 5 percent cobbles; moderately acid; gradual wavy boundary.

BC—32 to 36 inches; brown (7.5YR 4/3) extremely gravelly coarse sand; weak medium subangular blocky structure; very friable; few very fine and fine roots; common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; 60 percent gravel, 5 percent cobbles; moderately acid; clear smooth boundary.

C1—36 to 59 inches; reddish brown (5YR 4/3) very gravelly sand; single grain; loose; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; 40 percent gravel, 10 percent cobbles; moderately acid; clear smooth boundary.

2C2—59 to 80 inches; reddish brown (5YR 4/3) very cobbly sand; single grain; friable; many medium prominent strong brown (7.5YR 4/6) and few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation; 30 percent gravel, 20 percent cobbles; slightly acid.

Betsy Bay Series

The Betsy Bay series consists of moderately deep or deep, somewhat poorly drained soils in areas of outwash over bedrock lake benches. These soils formed in sandy beach deposits or sandy residuum derived from the sandstone. Permeability is rapid in the sandy material and moderately slow in the sandstone bedrock. Slopes range from 0 to 3 percent.

Typical pedon of Betsy Bay sand, 100 feet north and 500 feet west of the southeast corner of sec. 3, T. 57 N., R. 29 W., Grant Township, Keweenaw County, Michigan; USGS Point Isabelle 7.5-minute topographic quadrangle; lat. 47 degrees 21 minutes 30.40 seconds N. and long. 87 degrees 57 minutes 50.59 seconds W.

Oe—0 to 1 inch; very dark brown (10YR 2/2), partially decomposed forest litter.

E1—1 to 14 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/2) dry; weak coarse subangular blocky structure; very friable; many very fine and fine roots; strongly acid; gradual wavy boundary.

E2—14 to 18 inches; light brownish gray (10YR 5/3) sand, light gray (10YR 6/2) dry; single grain; loose; few very fine roots; strongly acid; clear wavy boundary.

Bw—18 to 26 inches; dark brown (10YR 3/3) sand; single grain; loose; common medium distinct very pale brown (10YR 7/4) iron depletions; 2 percent sandstone flags; moderately acid; gradual wavy boundary.

Cr—26 to 43 inches; brown (10YR 4/3) flaggy sand; single grain; loose; common medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation; 20 percent sandstone flags; strongly acid; abrupt smooth boundary.

R—43 inches; yellowish brown (10YR 5/4), weathered sandstone bedrock; strongly acid.

Borgstrom Series

The Borgstrom series consists of very deep, moderately well drained soils on outwash plains and lake plains. These soils formed in sandy outwash deposits and the underlying loamy lacustrine sediments. Permeability is rapid in the solum (except for the ortstein horizon, which is moderately permeable or moderately rapidly permeable) and moderately slow in the underlying loamy sediments. Slopes range from 0 to 6 percent.

Typical pedon of Borgstrom fine sand, 2,436 feet west and 1,015 feet north of the southeast corner of sec. 5, T. 57 N., R. 32 W., Allouez Township, Keweenaw County, Michigan; USGS Ahmeek 7.5-minute topographic quadrangle; lat. 47 degrees 21 minutes 38.70 seconds N. and long. 88 degrees 23 minutes 36.13 seconds W.

Oa—0 to 1 inch; black (7.5YR 2.5/1), well decomposed forest litter.

E—1 to 8 inches; brown (7.5YR 5/2) fine sand, pinkish gray (7.5YR 6/2) dry; weak medium subangular blocky structure; very friable; many very fine to medium and common coarse roots; very strongly acid; clear irregular boundary.

Bhsm—8 to 11 inches; dark brown (7.5YR 3/3) fine sand; moderate medium subangular blocky structure parting to single grain; very friable; common very fine to medium and few coarse roots; 90 percent dark brown (7.5YR 3/2 and 3/4) moderately cemented ortstein; ortstein extends into the Bs horizon; strongly acid; gradual irregular boundary.

Bsm—11 to 18 inches; dark brown (5YR 3/4) fine sand; single grain; very friable; few very fine and fine roots; 100 percent dark brown (7.5YR 3/3) and brown (7.5YR 54/4) moderately cemented ortstein; strongly acid; gradual irregular boundary.

Bs—18 to 21 inches; brown (7.5YR 4/4) fine sand; moderate medium subangular blocky structure; friable; few very fine and fine roots; 60 percent dark brown (7.5YR 3/4) and brown (7.5YR 5/4) moderately cemented ortstein; ortstein extends into the 2C1 horizon; moderately acid; gradual irregular boundary.

BC—21 to 24 inches; dark yellowish brown (10YR 4/4) fine sand; weak thin platy structure parting to moderate medium subangular blocky; friable; few very fine roots; 50 percent dark brown (7.5YR 3/4) and brown (7.5YR 5/4) moderately cemented ortstein; few fine distinct strong brown (7.5YR 4/6) masses of iron accumulation; moderately acid; gradual irregular boundary.

2C1—24 to 42 inches; reddish brown (5YR 4/4), stratified loamy fine sand, loamy very fine sand, and fine sand; moderate thin platy structure; friable; few very fine roots; common medium prominent brown (7.5YR 5/3) and many medium prominent strong brown (7.5YR 4/6 and 5/8) masses of iron accumulation; moderately acid; clear smooth boundary.

2C2—42 to 80 inches; reddish brown (5YR 4/3), stratified fine sand, loamy fine sand, loamy very fine sand, very fine sandy loam, and silt loam; massive; friable; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; moderately acid.

Burt Series

The Burt series consists of shallow, poorly drained, rapidly permeable soils on sandstone benches. These soils formed in sandy residuum overlying sandstone bedrock. Slopes range from 0 to 3 percent.

Typical pedon of Burt mucky sand, 700 feet south and 2,640 feet east of the northwest corner of sec. 27, T. 52 N., R. 33 W., Baraga Township, Baraga County, Michigan:

Oa—0 to 1 inch; black (10YR 2/1) muck; weak medium granular structure; friable; many roots; about 5 percent pebbles; strongly acid; abrupt smooth boundary.

A—1 to 5 inches; black (10YR 2/1) mucky sand, gray (10YR 5/1) dry; weak medium granular structure; very friable; many roots; about 5 percent pebbles; moderately acid; abrupt smooth boundary.

Cg—5 to 13 inches; gray (5Y 5/1) sand; single grain; loose; about 5 percent pebbles; moderately acid; clear smooth boundary.

C—13 to 19 inches; brown (10YR 5/3) sand; single grain; loose; about 5 percent pebbles; slightly acid; abrupt smooth boundary.

2R—19 inches; sandstone bedrock.

Cathro Series

The Cathro series consists of very deep, very poorly drained soils in depressions and drainageways on moraines, outwash plains, lake plains, stream terraces, and flood plains. These soils formed in organic deposits over loamy till. Permeability is moderately slow to moderately rapid in the organic part of the profile and moderate in the loamy part. Slopes range from 0 to 2 percent.

Typical pedon of Cathro muck, 1,270 feet south and 1,320 feet west of the northeast corner of sec. 25, T. 42 N., R. 26 W., Wells Township, Marquette County, Michigan; USGS Arnold topographic quadrangle; lat. 46 degrees 00 minutes 07 seconds N. and long. 87 degrees 29 minutes 50 seconds W.

Oa1—0 to 6 inches; muck, black (N 2.5/0) broken face, black (5YR 2.5/1) rubbed; weak thick platy structure; many very fine to medium roots; about 50 percent fiber, 15 percent rubbed; neutral; abrupt smooth boundary.

Oa2—6 to 18 inches; muck, black (10YR 2/1) broken face and black (5YR 2.5/1) rubbed; moderate very thick platy structure; few fine roots; about 40 percent fiber, 10 percent rubbed; slightly acid; abrupt smooth boundary.

Oa3—18 to 31 inches; muck, black (5YR 2.5/1) broken face and rubbed; massive; about 20 percent fiber, 5 percent rubbed; slightly acid; abrupt smooth boundary.

Cg—31 to 80 inches; dark grayish brown (10YR 4/2) fine sandy loam; massive; about 9 percent gravel and 5 percent cobbles; slightly effervescent; slightly alkaline.

Chocolay Series

The Chocolay series consists of moderately well drained soils on sandstone benches. These soils are moderately deep to bedrock. They formed in loamy till overlying sandstone. Permeability is moderate in the loamy part and moderately slow in the sandstone. Slopes range from 1 to 8 percent.

Typical pedon of Chocolay very cobbly fine sandy loam, 100 feet south and 1,200 feet east of the northwest corner of sec. 34, T. 47 N., R. 23 W., Chocolay Township, Marquette County, Michigan; USGS Skandia topographic quadrangle; lat. 46 degrees 25 minutes 51 seconds N. and long. 87 degrees 10 minutes 10 seconds W.

Oa—0 to 2 inches; black (N 2.5/0), well decomposed forest litter; moderate very fine granular structure; very friable; many very fine to coarse roots; about 15 percent stones; very strongly acid; abrupt smooth boundary.

A—2 to 3 inches; black (10YR 2/1) very cobbly fine sandy loam, gray (5YR 5/1) dry; moderate fine granular structure; friable; many very fine to coarse roots; 18 percent gravel, 25 percent cobbles, and 15 percent stones; very strongly acid; abrupt smooth boundary.

E—3 to 8 inches; reddish brown (5YR 4/3) very cobbly fine sandy loam, pinkish gray (5YR 6/2) dry; moderate fine subangular blocky structure; friable; many very fine to coarse roots; about 18 percent gravel, 25 percent cobbles, and 15 percent stones; very strongly acid; abrupt wavy boundary.

Bhs—8 to 14 inches; dark reddish brown (5YR 3/3) very cobbly fine sandy loam; weak fine subangular blocky structure; friable; many very fine to coarse roots; about 25 percent cobbles, 18 percent gravel, and 15 percent stones; strongly acid; clear irregular boundary.

Bs—14 to 27 inches; reddish brown (5YR 4/4) very gravelly sandy loam; weak fine subangular blocky structure; friable; common very fine to medium roots; few medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; about 30 percent gravel, 15 percent cobbles, and 10 percent stones; strongly acid; abrupt wavy boundary.

2R—27 inches; reddish brown (2.5YR 4/3) sandstone bedrock.

Copper Harbor Series

The Copper Harbor series consists of very deep, moderately well drained soils on glacial lake benches, stream terraces, and outwash plains. The upper part of the profile formed in cobbly, gravelly, and sandy deposits. The substratum formed in gravelly sandy loam till. Permeability is very rapid. Slopes range from 0 to 4 percent.

Typical pedon of Copper Harbor very gravelly loamy coarse sand, about 390 feet west and 398 feet south of the northeast corner of sec. 5, T. 57 N., R. 32 W., Allouez Township, Keweenaw County, Michigan; USGS Ahmeek 7.5-minute topographic quadrangle; lat. 47 degrees 22 minutes 17.60 seconds N. and long. 88 degrees 23 minutes 05.88 seconds W.

Oa—0 to 1 inch; black (5YR 2.5/1), well decomposed forest litter; abrupt smooth boundary.

E—1 to 5 inches; dark reddish brown (5YR 4/2) very gravelly loamy coarse sand, dark reddish gray (5YR 4/2) dry; moderate fine subangular blocky structure; friable; many very fine to medium and common coarse roots; 40 percent gravel, 10 percent cobbles; strongly acid; clear wavy boundary.

Bhs—5 to 14 inches; dark reddish brown (5YR 3/3) extremely gravelly loamy coarse sand; weak fine subangular blocky structure; friable; many very fine to medium and common coarse roots; dark reddish brown (5YR 3/3) weakly cemented ortstein; ortstein occupies 30 percent of the horizon; 60 percent gravel, 10 percent cobbles; moderately acid; gradual irregular boundary.

Bs1—14 to 20 inches; dark reddish brown (5YR 3/4) extremely gravelly coarse sand; weak fine subangular blocky structure; friable; common very fine to medium roots; dark reddish brown (5YR 4/4) weakly cemented ortstein; ortstein occupies 25 percent of the horizon; 60 percent gravel, 10 percent cobbles; moderately acid; gradual wavy boundary.

Bs2—20 to 30 inches; brown (7.5YR 4/4) extremely gravelly coarse sand; weak medium subangular blocky structure; friable; common very fine and fine and few medium roots; dark reddish brown (5YR 4/4) weakly cemented ortstein; ortstein occupies 10 percent of the horizon; 55 percent gravel, 10 percent cobbles; moderately acid; clear wavy boundary.

BC—30 to 40 inches; brown (7.5YR 4/3), stratified very gravelly coarse sand and very gravelly loamy coarse sand; weak medium subangular blocky structure; very friable; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation; common fine dark reddish brown (5YR 3/2) bands of fine sand and loamy fine sand $^{1}/_{16}$ to $^{1}/_{8}$ inch thick; 40 percent gravel, 10 percent cobbles; moderately acid; clear smooth boundary.

C1—40 to 60 inches; reddish brown (5YR 4/3) very gravelly sand; single grain; loose; common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; 35 percent gravel; 10 percent cobbles; slightly acid; clear smooth boundary.

2C2—60 to 80 inches; reddish brown (5YR 4/3) very cobbly loamy coarse sand; massive; friable; 30 percent gravel, 20 percent cobbles; neutral.

Croswell Series

The Croswell series consists of very deep, moderately well drained, rapidly permeable soils on beach ridges, outwash plains, and outwash terraces. These soils formed in sandy glaciolacustrine deposits and outwash. Slopes range from 0 to 12 percent.

Typical pedon of Croswell sand, 600 feet north and 1,650 feet west of the southeast corner of sec. 23, T. 45 N., R. 29 W., Humbolt Township, Marquette County, Michigan; USGS Republic SW topographic quadrangle; lat. 46 degrees 17 minutes 09 seconds N. and long. 87 degrees 53 minutes 37 seconds W.

A—0 to 3 inches; very dark brown (10YR 2/2) sand, dark grayish brown (10YR 4/2) dry; weak very fine granular structure; very friable; many very fine to coarse roots; about 2 percent gravel; strongly acid; abrupt smooth boundary.

E—3 to 7 inches; pinkish gray (5YR 6/2) sand, pinkish gray (7.5YR 6/2) dry; weak fine granular structure; very friable; many very fine to coarse roots; about 2 percent gravel; strongly acid; abrupt smooth boundary.

Bs1—7 to 14 inches; reddish brown (5YR 4/4) sand; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 2 percent gravel; strongly acid; clear wavy boundary.

Bs2—14 to 22 inches; yellowish red (5YR 4/6) sand; weak fine subangular blocky structure; very friable; few very fine to medium roots; tongues of dark reddish brown (5YR 3/4) moderately cemented ortstein occupy 13 percent (5 or 40 inches) of the horizon; tongues are 2 to 3 inches wide and 8 to 29 inches apart and extend into the Bs3 horizon; about 2 percent gravel; moderately acid; gradual wavy boundary.

Bs3—22 to 34 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few very fine to medium roots; tongues of reddish brown (5YR 4/4) moderately cemented ortstein extend into the horizon from the Bs2 horizon and occupy 15 percent (6 of 40 inches) of the horizon; tongues are 2 to 3 inches wide and 8 to 29 inches apart and extend into the C horizon to a depth of 38 inches; common fine distinct strong brown (7.5YR 5/8) masses of iron accumulation beginning at a depth of about 26 inches; about 2 percent gravel; moderately acid; gradual wavy boundary.

C—34 to 80 inches; light brown (7.5YR 6/4) sand; single grain; loose; few very fine and fine roots; common fine distinct strong brown (7.5YR 5/8) masses of iron accumulation; about 2 percent gravel; moderately acid.

Dawson Series

The Dawson series consists of very deep, very poorly drained soils in depressions on outwash plains, till-floored lake plains, and moraines. These soils formed in organic deposits overlying sandy outwash. Permeability is moderately rapid to moderately slow in the organic part of the profile and rapid in the sandy part. Slopes are 0 to 1 percent.

Typical pedon of Dawson peat, 1,100 feet south and 100 feet west of the northeast corner of sec. 20, T. 55 N., R. 31 W., Franklin Township, Houghton County, Michigan:

Oi—0 to 6 inches; peat, dark brown (10YR 3/3) broken face, dark brown (10YR 4/3) rubbed; about 90 percent fiber, 80 percent rubbed; massive; nonsticky; primarily sphagnum moss fibers; extremely acid; abrupt smooth boundary.

Oe—6 to 10 inches; mucky peat, black (10YR 2/1) broken face and rubbed; about 80 percent fiber, 30 percent rubbed; massive; nonsticky; primarily herbaceous fibers; extremely acid; abrupt smooth boundary.

Oa1—10 to 18 inches; muck, very dark brown (10YR 2/2) broken face and rubbed; about 15 percent fibers, 5 percent rubbed; massive; nonsticky; primarily herbaceous fibers; extremely acid; clear wavy boundary.

Oa2—18 to 30 inches; muck, black (10YR 2/1) broken face and rubbed; about 15 percent fibers, 5 percent rubbed; massive; nonsticky; primarily herbaceous fibers; extremely acid; abrupt smooth boundary.

A—30 to 34 inches; very dark grayish brown (10YR 3/2) sand; massive; nonsticky; very strongly acid; clear wavy boundary.
C—34 to 60 inches; brown (10YR 4/3) sand; single grain; nonsticky; very strongly acid.

Deer Park Series

The Deer Park series consists of very deep, excessively drained, rapidly permeable soils on beach ridges and dunes. These soils formed in sandy beach deposits. Slopes range from 0 to 70 percent.

Typical pedon of Deer Park sand; about 6 miles north of the city of Hancock; 660 feet north and 245 feet west of the southeast corner of sec. 21, T. 56 N., R. 34 W., Houghton County, Michigan:

Oe—0 to 2 inches; black (10YR 2/1), partially decomposed leaf litter.
A—2 to 6 inches; black (10YR 2/1) sand, dark gray (10YR 4/1) dry; weak medium granular structure; very friable; common roots; very strongly acid; abrupt smooth boundary.
E—6 to 26 inches; pale brown (10YR 6/3) sand; single grain; loose; common roots; moderately acid; clear smooth boundary.
Bs1—26 to 29 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few roots; moderately acid; gradual wavy boundary.
Bs2—29 to 38 inches; brown (10YR 5/3) fine sand; single grain; loose; moderately acid; gradual wavy boundary.
C—38 to 62 inches; pale brown (10YR 6/3) sand; single grain; loose; slightly acid.

Deford Series

The Deford series consists of very deep, poorly drained, rapidly permeable soils in depressions and drainageways on outwash plains, lake plains, and moraines. These soils formed in sandy outwash. Slopes range from 0 to 2 percent.

Typical pedon of Deford muck, 1,300 feet north and 1,150 feet west of the southeast corner of sec. 20, T. 44 N., R. 26 W., Forsyth Township, Marquette County, Michigan; USGS Northland NE topographic quadrangle; lat. 46 degrees 12 minutes 38 seconds N. and long. 87 degrees 36 minutes 35 seconds W.

Oa—0 to 6 inches; black (N 2.5/0) muck; moderate very fine granular structure; very friable; many very fine to coarse roots; moderately acid; abrupt wavy boundary.
Cg1—6 to 18 inches; grayish brown (10YR 5/2) sand; single grain; loose; few very fine to medium roots; few fine distinct yellowish brown (10YR 5/6) and common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; about 1 percent gravel; moderately acid; gradual wavy boundary.
Cg2—18 to 30 inches; brown (10YR 5/3) sand; single grain; loose; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; few medium prominent dark gray (10YR 4/1) iron depletions; about 1 percent gravel; moderately acid; gradual wavy boundary.
Cg3—30 to 80 inches; very dark gray (2.5Y 3/1) sand; single grain; loose; about 2 percent gravel; moderately acid.

Dishno Series

The Dishno series consists of moderately well drained soils on bedrock-controlled moraines. These soils are deep to bedrock. They formed in silty and loamy deposits over sandy and gravelly till underlain by igneous or metamorphic bedrock. Permeability is moderate in the loamy material and moderately rapid in the sandy material. Slopes range from 0 to 35 percent.

Typical pedon of Dishno cobbly silt loam, 583 feet north and 1,832 feet east of the southwest corner of sec. 33, T. 49 N., R. 29 W., Michigamme Township, Marquette County, Michigan; USGS Champion topographic quadrangle; lat. 46 degrees 35 minutes 39.3 seconds N. and long. 87 degrees 56 minutes 16 seconds W.

Oe—0 to 1 inch; dark reddish brown (5YR 2.5/2), partially decomposed forest litter; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.

A—1 to 3 inches; dark reddish brown (5YR 3/2) cobbly silt loam, reddish gray (5YR 5/2) dry; moderate very fine granular structure; friable; many very fine to coarse roots; few very fine vesicular pores; about 10 percent cobbles, 9 percent gravel, 5 percent stones, and 1 percent boulders; extremely acid; clear wavy boundary.

E—3 to 9 inches; reddish gray (5YR 5/2) cobbly silt loam, light gray (5YR 7/1) dry; weak medium platy structure parting to weak very fine subangular blocky; friable; many very fine to coarse roots; few very fine vesicular pores; about 10 percent cobbles, 9 percent gravel, 5 percent stones, and 1 percent boulders; extremely acid; abrupt wavy boundary.

Bhs—9 to 10 inches; dark brown (7.5YR 3/2) cobbly loam; weak fine subangular blocky structure; friable; many very fine to coarse roots; few very fine vesicular pores; about 10 percent cobbles, 7 percent gravel, 5 percent stones, and 1 percent boulders; very strongly acid; abrupt broken boundary.

Bs1—10 to 18 inches; dark brown (7.5YR 3/4) cobbly fine sandy loam; weak fine subangular blocky structure; friable; many very fine to coarse roots; few very fine vesicular pores; about 10 percent cobbles, 7 percent gravel, 5 percent stones, and 1 percent boulders; very strongly acid; clear wavy boundary.

Bs2—18 to 22 inches; brown (7.5YR 4/4) cobbly loamy sand; weak medium platy structure; firm; common very fine to coarse roots; common very fine vesicular pores; about 10 percent cobbles, 7 percent gravel, 5 percent stones, and 1 percent boulders; strongly acid; abrupt broken boundary.

2BC—22 to 29 inches; brown (10YR 4/3) very stony loamy sand; massive; weak thick platiness inherent from deposition; mostly friable, firm in places; few very fine to medium roots; few very fine vesicular pores; discontinuous silt coatings on rock fragments; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 13 percent gravel, 10 percent cobbles, 10 percent stones, and 5 percent boulders; strongly acid; gradual wavy boundary.

2C—29 to 46 inches; light olive brown (2.5Y 5/3) very stony loamy sand; massive; weakly expressed thick platiness inherent from deposition; mostly friable, firm in places; few very fine to medium roots; few very fine vesicular pores; discontinuous silt coatings on rock fragments; few medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 13 percent gravel, 10 percent cobbles, 10 percent stones, and 5 percent boulders; moderately acid; abrupt smooth boundary.

3R—46 inches; brown (10YR 4/3), unweathered bedrock; discontinuous layer of brown (10YR 4/3) loamy coarse sand saprolite $^{1}/_{8}$ inch thick on surface of bedrock; many coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation on surface of bedrock; strongly acid.

Garlic Series

The Garlic series consists of very deep, well drained, rapidly permeable soils on till-floored lake plains and dissected moraines. These soils formed in sandy glaciofluvial sediments. Slopes range from 0 to 60 percent.

Typical pedon of Garlic fine sand, 2,000 feet west and 1,350 feet north of the southeast corner of sec. 6, T. 46 N., R. 24 W., West Branch Township, Marquette

County, Michigan; USGS Harvey topographic quadrangle; lat. 46 degrees 24 minutes 32.50 seconds N. and long. 87 degrees 21 minutes 13.18 seconds W.

Oa—0 to 1 inch; black (N 2.5/0), well decomposed leaf litter; moderate fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt smooth boundary.
E—1 to 9 inches; reddish gray (5YR 5/2) fine sand, pinkish gray (5YR 6/2) dry; weak fine subangular blocky structure; very friable; many very fine to coarse roots; very strongly acid; clear wavy boundary.
Bhs—9 to 15 inches; dark reddish brown (5YR 3/2) fine sand; weak medium subangular blocky structure; friable; many very fine to coarse roots; dark reddish brown (5YR 3/2) moderately cemented ortstein occupies 28 percent (11 of 40 inches) of the lower part of the horizon; ortstein extends into the Bs horizon; very strongly acid; clear wavy boundary.
Bs—15 to 26 inches; dark reddish brown (5YR 3/4) fine sand; weak medium subangular blocky structure; friable; common very fine to coarse roots; dark reddish brown (5YR 3/3) and reddish brown (5YR 4/4) strongly cemented ortstein occupies 75 percent (30 of 40 inches) of the horizon; ortstein extends into this horizon from the Bhs horizon as tongues 10 to 30 inches apart to a depth of 47 inches; moderately acid; clear wavy boundary.
BC—26 to 46 inches; brown (7.5YR 5/4) fine sand; weak fine subangular blocky structure; friable; few very fine to medium roots; few thin strata of reddish brown (5YR 4/4) loamy fine sand; moderate cementation in the upper part of the horizon; strongly acid; gradual wavy boundary.
C—46 to 80 inches; brown (7.5YR 5/4) fine sand; single grain; loose; slightly acid.

Gay Series

The Gay series consists of deep, very poorly drained and poorly drained, moderately permeable soils on till plains. These soils formed in loamy glacial till. Slopes are 0 to 3 percent.

Typical pedon of Gay muck (fig. 19), 280 feet west and 1,200 feet north of the southeast corner of sec. 20, T. 51 N., R. 32 W., L'Anse Township, Baraga County, Michigan:

Oa—0 to 4 inches; very dark gray (10YR 3/1) muck; moderate medium granular structure; friable; many roots; strongly acid; abrupt smooth boundary.
A—4 to 7 inches; dark gray (10YR 4/1) fine sandy loam, gray (10YR 6/1) dry; weak fine subangular blocky structure; friable; many roots; strongly acid; clear smooth boundary.
Eg—7 to 11 inches; light brownish gray (10YR 6/2) sandy loam; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation; weak medium subangular blocky structure; friable; common roots; about 2 percent pebbles; moderately acid; clear wavy boundary.
Bw—11 to 16 inches; brown (7.5YR 5/4) sandy loam; many medium distinct grayish brown (10YR 5/2) and common fine faint yellowish brown (10YR 5/6) masses of iron accumulation; weak thick platy structure parting to weak fine subangular blocky; friable; common roots; about 4 percent pebbles; moderately acid; clear wavy boundary.
BC—16 to 30 inches; reddish brown (2.5YR 4/4) sandy loam; many medium distinct strong brown (7.5YR 5/6) and common fine distinct reddish brown (5YR 5/3) masses of iron accumulation; massive; friable; few roots; about 4 percent pebbles; slightly acid; clear wavy boundary.
C—30 to 60 inches; reddish brown (2.5YR 4/4) sandy loam; massive; friable; about 5 percent pebbles; slightly acid.

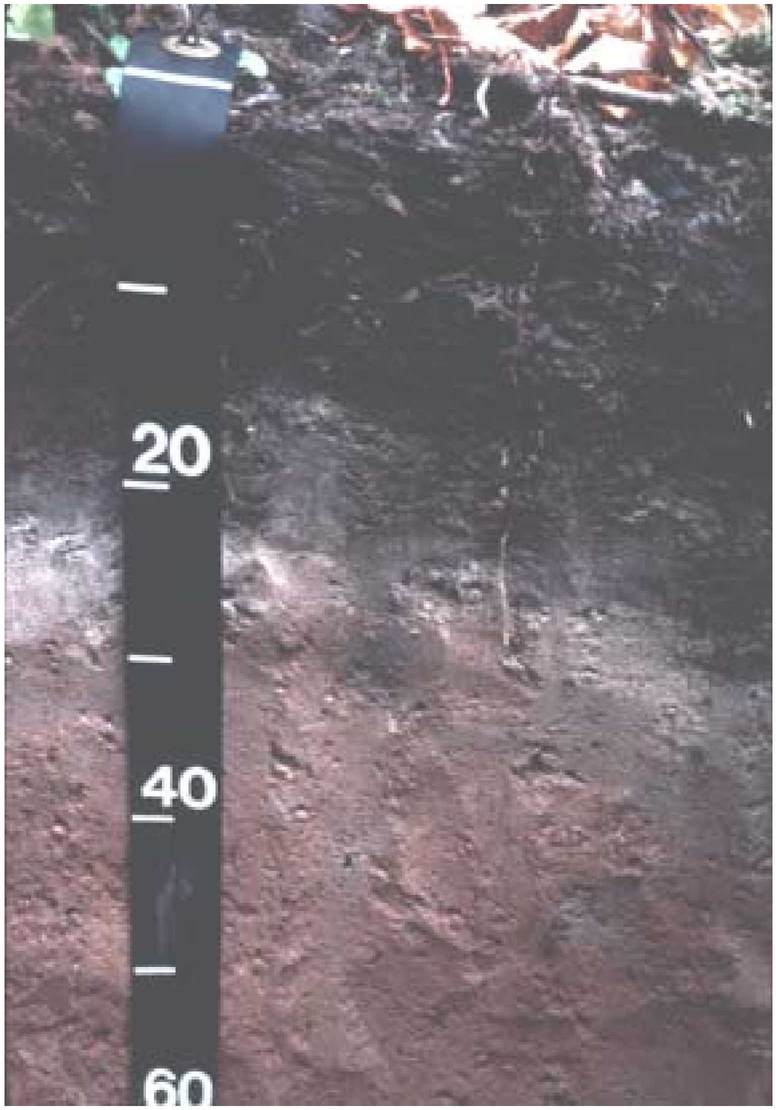


Figure 19.—Typical profile of a Gay soil. The thick dark surface horizon is typical of poorly drained soils. Depth is marked in inches.

Gratiot Series

The Gratiot series consists of very deep, somewhat poorly drained soils on moraines. These soils formed in loamy and sandy sediments. Permeability is moderate above the fragipan, very slow in the fragipan, and moderately rapid or moderate below the fragipan. Slopes range from 0 to 4 percent.

Typical pedon of Gratiot very cobbly fine sandy loam, 1,700 feet north and 2,200 feet east of the southwest corner of sec. 35, T. 58 N., R. 31 W., Houghton Township, Keweenaw County, Michigan; USGS Eagle Harbor 7.5-minute topographic quadrangle; lat. 47 degrees 22 minutes 36 seconds N. and long. 88 degrees 12 minutes 01.54 seconds W.

Oa—0 to 1 inch; dark reddish brown (5YR 3/3), well decomposed forest litter; abrupt smooth boundary.

A—1 to 4 inches; black (5YR 2.5/1) very cobbly fine sandy loam, dark reddish brown (5YR 3/2) dry; medium coarse granular structure; friable; many very fine to medium and common coarse and very coarse roots; 25 percent gravel, 15 percent cobbles, and 2 percent stones; strongly acid; abrupt wavy boundary.

Bhs—4 to 7 inches; dark reddish brown (5YR 3/2) very cobbly loamy sand; moderate medium subangular blocky structure; friable; many very fine to medium and common coarse and very coarse roots; 34 percent gravel, 15 percent cobbles, and 2 percent stones; strongly acid; clear wavy boundary.

Bs1—7 to 12 inches; dark reddish brown (5YR 3/4) very cobbly loamy sand; moderate medium subangular blocky structure; friable; many very fine and common fine and medium roots; few medium prominent yellowish red (5YR 4/6) masses of iron accumulation; 34 percent gravel, 15 percent cobbles, and 2 percent stones; strongly acid; clear wavy boundary.

Bs2—12 to 20 inches; reddish brown (5YR 4/4) very cobbly fine sandy loam; weak medium platy structure parting to weak medium subangular blocky; friable; many very fine and common fine and medium roots; many medium prominent yellowish red (5YR 4/6 and 5/8) masses of iron accumulation; 24 percent gravel, 13 percent cobbles, and 2 percent stones; strongly acid; clear wavy boundary.

(B/E)x—20 to 30 inches; about 75 percent reddish brown (5YR 4/4) cobbly fine sandy loam (Bt) surrounding reddish brown (5YR 5/3) cobbly loamy fine sand (E); reddish gray (5YR 5/2) dry; moderate thick platy structure; firm; few faint reddish brown (5YR 4/4) clay bridges between sand grains; few very fine and fine roots; many medium prominent yellowish red (5YR 4/6 and 5/8) masses of iron accumulation; 21 percent gravel, 10 percent cobbles, and 2 percent stones; slightly acid; clear wavy boundary.

C1—30 to 36 inches; reddish brown (5YR 4/3) cobbly fine sandy loam; massive; friable; few very fine and fine roots; common medium prominent yellowish red (5YR 4/6 and 5/8) masses of iron accumulation; 10 percent gravel, 7 percent cobbles, and 2 percent stones; neutral; gradual wavy boundary.

C2—36 to 80 inches; reddish brown (5YR 4/3) cobbly fine sandy loam; massive; friable; 10 percent gravel, 6 percent cobbles, and 1 percent stones; strongly effervescent; strongly alkaline.

Ingalls Series

The Ingalls series consists of very deep, somewhat poorly drained soils on outwash plains and lake plains. These soils formed in sandy outwash overlying stratified loamy lacustrine sediments. Permeability is rapid in the overlying sandy part and moderately slow in the loamy part. Slopes range from 0 to 4 percent.

Typical pedon of Ingalls sand, 2,200 feet south and 400 feet east of the northwest corner of sec. 16, T. 46 N., R. 19 W., Munising Township, Alger County, Michigan; USGS Munising, MI, topographic quadrangle; lat. 46 degrees 23 minutes 03 seconds N. and long. 86 degrees 41 minutes 54 seconds W., NAD27:

Oa—0 to 4 inches; decomposed forest litter; moderate medium granular structure; very friable; many very fine to very coarse roots; ultra acid; clear wavy boundary.

A—4 to 5 inches; very dark grayish brown (10YR 3/2) sand, gray (10YR 6/1) dry; weak fine subangular blocky structure; very friable; many very fine to very coarse roots; about 1 percent gravel; extremely acid; abrupt wavy boundary.

E—5 to 14 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/1) dry; weak fine subangular blocky structure; loose; very few prominent very dark brown (10YR 2/2) organic stains on surfaces along root channels; common very fine to medium roots; about 1 percent gravel; extremely acid; abrupt irregular boundary.

Bhs—14 to 16 inches; dark reddish brown (5YR 2.5/2) sand; weak medium subangular blocky structure; very friable; about 35 percent strongly cemented dark reddish brown (5YR 3/4 and 3/2) ortstein, which occurs intermittently on a horizontal plane; common very fine to medium roots; about 1 percent gravel; extremely acid; abrupt broken boundary.

Bs—16 to 22 inches; reddish brown (5YR 4/4) sand; weak medium subangular blocky structure; very friable; common medium distinct yellowish red (5YR 5/8) iron-manganese masses (spherical) on faces of peds; few very fine and fine roots; about 1 percent gravel; extremely acid; gradual irregular boundary.

Bw—22 to 35 inches; strong brown (7.5YR 5/6) sand; weak fine subangular blocky structure; loose; few very fine and fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.

2C—35 to 80 inches; reddish brown (2.5YR 5/4) and brown (7.5YR 5/3), stratified silt loam and silt; massive parting to weak medium platy structure; friable; few very fine and fine roots; about 1 percent gravel; moderately acid.

Jacobsville Series

The Jacobsville series consists of moderately deep, poorly drained, moderately permeable soils on till plains and sandstone benches. These soils formed in loamy and sandy glacial till over sandstone bedrock. Slopes range from 0 to 2 percent.

Typical pedon of Jacobsville muck, 1,800 feet north and 1,900 feet west of the southeast corner of sec. 36, T. 55 N., R. 32 W., Torch Lake Township, Houghton County, Michigan:

Oa—0 to 5 inches; black (N 2/0) muck; weak fine subangular blocky structure; very friable; many roots; strongly acid; abrupt smooth boundary.

Eg—5 to 9 inches; dark reddish gray (5YR 4/2) sandy loam; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; weak medium subangular blocky structure; friable; few roots; about 5 percent gravel; strongly acid; clear wavy boundary.

Bw—9 to 23 inches; dark reddish brown (2.5YR 3/4) sandy loam; common medium prominent dark brown (7.5YR 4/2) and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; weak fine and medium subangular blocky structure; friable; about 5 percent gravel; moderately acid; clear wavy boundary.

C—23 to 36 inches; reddish brown (2.5YR 4/4) sandy loam; many medium prominent dark reddish gray (5YR 4/2), common medium prominent pinkish gray (7.5YR 6/2), and few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; weak medium subangular blocky structure; friable; about 5 percent gravel; moderately acid; clear smooth boundary.

2R—36 inches; reddish brown (2.5YR 4/4) sandstone bedrock.

Keweenaw Series

The Keweenaw series consists of very deep, well drained soils that formed in sandy deposits. These soils are typically on ground moraines and end moraines, but in some places they are on drumlins and islands of till surrounded by outwash. Permeability is moderate or moderately rapid. Slopes range from 1 to 60 percent.

Typical pedon of Keweenaw loamy sand, north of Thayer Lake; 2,064 feet west and 1,484 feet south of the northeast corner of sec. 29, T. 57 N., R. 31 W., Sherman Township, Keweenaw County, Michigan; USGS Mohawk, MI, topographic quadrangle; lat. 47 degrees 18 minutes 39.27 seconds N. and long. 88 degrees 15 minutes 59.57 seconds W., NAD83:

Oa—0 to 1 inch; black (5YR 2.5/1), well decomposed forest litter.

E—1 to 11 inches; reddish gray (5YR 5/2) loamy sand; weak fine and medium subangular blocky structure; very friable; many very fine to coarse roots; 3 percent gravel; extremely acid; clear irregular boundary.

Bhs—11 to 17 inches; dark reddish brown (5YR 3/3) loamy sand; moderate medium subangular blocky structure; firm; 75 percent weakly cemented ortstein; many very fine to coarse roots; 3 percent gravel; extremely acid; gradual irregular boundary.

Bs1—17 to 27 inches; dark brown (7.5YR 3/4) loamy sand; moderate thin platy structure; friable and firm; 35 percent weakly cemented ortstein; ortstein occurs as tongues that extend to a depth of 60 inches; common very fine to medium roots; 8 percent gravel; extremely acid; clear irregular boundary.

Bs2—27 to 39 inches; brown (7.5YR 4/4) loamy sand; weak thin platy structure; very friable; few very fine and fine roots; 2 percent gravel; very strongly acid; clear smooth boundary.

B/E—39 to 61 inches; about 70 percent reddish brown (5YR 4/4) fine sandy loam (Bt); common very fine and fine vesicular pores in peds; surrounded by weak brown (7.5YR 5/4) loamy sand (E); weak thin platy structure; friable; 2 percent gravel; very strongly acid; clear smooth boundary.

E and Bt—61 to 80 inches; reddish brown (5YR 4/3) loamy sand (E) and lamellae of brown (7.5YR 4/4) fine sandy loam and sandy loam (Bt); single grain; loose; lamellae are 1/8 inch to 2 inches thick with a total accumulation of 8 inches; 2 percent gravel; moderately acid.

Kinross Series

The Kinross series consists of very deep, very poorly drained, rapidly permeable soils in depressions on outwash plains, moraines, and till-floored lake plains. These soils formed in sandy outwash and glaciolacustrine deposits. Slopes range from 0 to 3 percent.

Typical pedon of Kinross mucky peat, 60 feet west and 2,193 feet south of the northeast corner of sec. 36, T. 45 N., R. 25 W.; near Bass Lake; USGS Little Lake topographic quadrangle; lat. 46 degrees 15 minutes 12 seconds N. and long. 87 degrees 22 minutes 02 seconds W., Forsyth Township, Marquette County, Michigan:

Oe—0 to 3 inches; black (7.5YR 2.5/1) mucky peat; weak medium granular structure; very friable; many very fine to medium roots; extremely acid; abrupt smooth boundary.

Oa—3 to 5 inches; very dark gray (7.5YR 3/1) muck; weak medium granular structure; very friable; many very fine to medium roots; extremely acid; abrupt smooth boundary.

E—5 to 10 inches; light brownish gray (10YR 6/2) sand, light gray (10YR 7/2) dry; weak medium subangular blocky structure; very friable; many very fine to medium roots; many medium and coarse distinct dark brown (10YR 3/3) and dark yellowish brown (10YR 4/4) masses of iron accumulation; extremely acid; abrupt wavy boundary.

Bhs—10 to 15 inches; very dark brown (7.5YR 2.5/2) sand; weak fine and medium subangular blocky structure; friable; many very fine to medium roots; common medium prominent strong brown (7.5YR 4/6) and dark brown (7.5YR 3/4) masses of iron accumulation; discontinuous dark reddish brown (5YR 3/2) strongly cemented ortstein occupies about 30 percent of the horizon; about 3 percent gravel; extremely acid; clear wavy boundary.

Bs—15 to 30 inches; dark brown (7.5YR 3/4) sand; weak fine subangular blocky structure; very friable; common very fine and fine roots; common medium distinct brown (7.5YR 4/3) masses of iron accumulation; about 3 percent gravel; very strongly acid; gradual wavy boundary.

BC—30 to 42 inches; dark yellowish brown (10YR 4/4) sand; single grain; loose; common medium and coarse distinct strong brown (7.5YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

C—42 to 80 inches; brown (10YR 5/3) sand; single grain; loose; very strongly acid.

Lac La Belle Series

The Lac La Belle series consists of well drained soils on ground moraines and end moraines. These soils formed in cobbly and gravelly loamy and sandy materials. Permeability is rapid in the upper part and very slow in the lower part. Slopes range from 15 to 60 percent.

Typical pedon of Lac La Belle very stony loamy sand, 1,380 feet east and 1,200 feet south of the northwest corner of sec. 13, T. 58 N., R. 28 W., Grant Township, Keweenaw County; USGS Fort Wilkins 7.5-minute topographic quadrangle; lat. 47 degrees 25 minutes 34.20 seconds N. and long. 87 degrees 48 minutes 30.26 seconds W.

Oa—0 to 1 inch; reddish black (5YR 2.5/1), well decomposed forest litter.

E—1 to 5 inches; reddish gray (5YR 5/2) very stony loamy sand, pinkish gray (5YR 6/2) dry; weak fine subangular blocky structure; very friable; many very fine to coarse roots; 25 percent gravel, 15 percent cobbles, 6 percent stones, and 2 percent boulders; extremely acid; abrupt smooth boundary.

Bhs—5 to 12 inches; dark reddish brown (5YR 3/3) extremely stony loamy sand; weak fine subangular blocky structure; very friable; many very fine to coarse roots; 35 percent gravel, 20 percent cobbles, 8 percent stones, and 3 percent boulders; extremely acid; clear wavy boundary.

Bs1—12 to 19 inches; dark reddish brown (5YR 3/4) extremely cobbly loamy sand; weak fine subangular blocky structure; very friable; many very fine to coarse roots; 35 percent gravel, 25 percent cobbles, 8 percent stones, and 3 percent boulders; very strongly acid; clear wavy boundary.

Bs2—19 to 36 inches; brown (7.5YR 4/4) extremely cobbly loamy sand; weak fine subangular blocky structure; very friable; common very fine to medium roots; 35 percent gravel, 25 percent cobbles, 8 percent stones, and 3 percent boulders; very strongly acid; clear wavy boundary.

2(E/B)x—36 to 42 inches; about 60 percent brown (7.5YR 4/3) very cobbly loamy sand, brown (7.5YR 5/2) dry (E); reddish brown (5YR 4/4) very cobbly sandy loam (Bt); moderate thick platy structure; very firm; few very fine and fine roots; common very fine vesicular pores; few fine prominent and few faint reddish brown (5YR 4/3) clay films on faces of peds; 20 percent gravel, 20 percent cobbles, 5 percent stones, and 2 percent boulders; very strongly acid; gradual irregular boundary.

2Btx—42 to 50 inches; reddish brown (5YR 4/4) very cobbly loamy sand; moderate thick platy structure; very firm; few very fine vesicular pores; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; few faint reddish brown (5YR 4/3) clay films on faces of peds; 15 percent gravel, 20 percent cobbles, 5 percent stones, and 2 percent boulders; very strongly acid; clear broken boundary.

2(B/E)x—50 to 62 inches; about 65 percent reddish brown (5YR 4/4) very cobbly sandy loam (Bt) and brown (7.5YR 4/3) very cobbly loamy sand (E), brown (7.5YR 5/2) dry (E); weak thick platy structure; firm; few very fine vesicular pores; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; few faint reddish brown (5YR 4/3) clay films on faces of peds; 15 percent gravel, 20 percent cobbles, 3 percent stones, and 1 percent boulders; very strongly acid; gradual irregular boundary.

2C—62 to 80 inches; reddish brown (5YR 4/4) very cobbly loamy sand; massive; firm; 15 percent gravel, 22 percent cobbles, 3 percent stones, and 1 percent boulders; strongly acid.

Loxley Series

The Loxley series consists of very deep, very poorly drained soils in depressions on lake plains, outwash plains, and till plains. These soils formed in mainly herbaceous organic material. Permeability ranges from moderately slow to moderately rapid. Slopes are 0 to 1 percent.

Typical pedon of Loxley peat, 2,650 feet north and 600 feet west of the southeast corner of sec. 22, T. 55 N., R. 35 W., Stanton Township, Houghton County, Michigan:

Oi—0 to 5 inches; dark yellowish brown (10YR 3/4) peat; 100 percent fiber, 100 percent rubbed; massive; primarily live roots and sphagnum moss; extremely acid; clear smooth boundary.

Oa1—5 to 12 inches; muck, black (10YR 2/1) broken face and rubbed; about 30 percent fiber, 10 percent rubbed; nonsticky; primarily herbaceous fibers, a few woody fibers; extremely acid; gradual smooth boundary.

Oa2—12 to 26 inches; muck, very dark brown (10YR 2/2) broken face and rubbed; about 10 percent fiber, 2 percent rubbed; nonsticky; primarily herbaceous fibers, a few woody fibers; extremely acid; gradual smooth boundary.

Oa3—26 to 38 inches; muck, very dark brown (10YR 2/2) broken face and rubbed; about 15 percent fiber, 2 percent rubbed; massive; nonsticky; primarily herbaceous fibers; extremely acid; gradual smooth boundary.

Oa4—38 to 45 inches; muck, dark brown (7.5YR 3/4) broken face and very dark brown (10YR 2/2) rubbed; about 60 percent fiber, 10 percent rubbed; massive; nonsticky; primarily herbaceous fibers; extremely acid; gradual smooth boundary.

Oe—45 to 60 inches; mucky peat, brown (7.5YR 4/4) broken face and rubbed; about 90 percent fiber, 30 percent rubbed; massive; nonsticky; primarily herbaceous fibers; extremely acid.

Lupton Series

The Lupton series consists of very deep, poorly drained soils on moraines, outwash plains, and lake plains. These soils formed in herbaceous and woody deposits more than 51 inches thick. Permeability ranges from moderately slow to moderately rapid. Slopes are 0 to 1 percent.

Typical pedon of Lupton muck, 2,400 feet east and 2,000 feet north of the southwest corner of sec. 31, T. 59 N., R. 29 W., Eagle Harbor Township, Keweenaw County, Michigan; USGS Delaware 7.5-minute topographic quadrangle; lat. 47 degrees 27 minutes 55.68 seconds N. and long. 88 degrees 02 minutes 11.90 seconds W.

Oa1—0 to 8 inches; muck, black (10YR 2/1) broken face, black (7.5YR 2.5/1) rubbed; about 15 percent fiber, 5 percent rubbed; weak thin to thick platy structure; very friable; many very fine and fine roots; 1 percent wood fragments; slightly acid; abrupt wavy boundary.

Oa2—8 to 20 inches; muck, very dark brown (7.5YR 2.5/2) broken face and rubbed; about 10 percent fiber, 3 percent rubbed; weak medium to coarse subangular blocky structure; very friable; common very fine, fine, and medium roots; 4 percent wood fragments; slightly acid; clear wavy boundary.

Oa3—20 to 34 inches; muck, black (7.5YR 2.5/1) broken face, black (5YR 2.5/1) rubbed; about 12 percent fiber, 6 percent rubbed; weak medium subangular blocky structure; very friable; common fine to medium roots; 11 percent wood fragments; neutral; clear wavy boundary.

Oa4—34 to 80 inches; muck, black (7.5YR 2.5/1) broken face and rubbed (5YR 2.5/1); about 18 percent fiber, 8 percent rubbed; weak medium subangular blocky structure; very friable; common fine and few medium roots; 12 percent wood fragments; neutral.

Michigamme Series

The Michigamme series consists of moderately deep, well drained, moderately permeable soils on rocky knolls, till plains, and moraines. These soils formed in silty material and in loamy glacial till overlying igneous and metamorphic bedrock. Slopes range from 8 to 70 percent.

Typical pedon of Michigamme cobbly silt loam, 2,200 feet south and 300 feet east of the northwest corner of sec. 12, T. 47 N., T. 34 W., Covington Township, Baraga County, Michigan:

A—0 to 2 inches; dark reddish brown (5YR 2/2) cobbly silt loam, pinkish gray (5YR 6/2) dry; moderate fine granular structure; very friable; many fine roots; about 2 percent pebbles and 30 percent cobbles; extremely acid; clear smooth boundary.

E—2 to 4 inches; brown (7.5YR 5/2) cobbly silt loam; weak medium subangular blocky structure; friable; many fine roots; about 2 percent pebbles and 30 percent cobbles; extremely acid; clear wavy boundary.

Bhs—4 to 7 inches; dark reddish brown (5YR 3/2) silt loam; weak medium subangular blocky structure parting to weak fine granular; friable; many fine and medium roots; about 3 percent pebbles and 10 percent cobbles; extremely acid; clear wavy boundary.

Bs1—7 to 14 inches; dark reddish brown (5YR 3/4) silt loam; weak medium subangular blocky structure; friable; many fine and medium roots; about 2 percent pebbles; very strongly acid; gradual wavy boundary.

Bs2—14 to 20 inches; reddish brown (5YR 4/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; about 3 percent pebbles and 10 percent cobbles; strongly acid; gradual wavy boundary.

Bs3—20 to 24 inches; brown (7.5YR 4/4) cobbly silt loam; weak fine subangular blocky structure; friable; few fine roots; about 10 percent pebbles and 30 percent cobbles; strongly acid; gradual irregular boundary.

2C—24 to 31 inches; about 50 percent brown (10YR 5/3) and 50 percent dark reddish brown (5YR 3/4) gravelly fine sandy loam; weak medium angular blocky structure; friable; few fine roots; about 20 percent pebbles and 15 percent cobbles; strongly acid; abrupt smooth boundary.

3R—31 inches; red (2.5YR 5/2) bedrock.

Montreal Series

The Montreal series consists of deep, moderately well drained soils on ground moraines and end moraines. These soils formed in cobbly and gravelly loamy and sandy materials. They have a fragipan. Permeability is moderate in the loamy material, very slow in the fragipan, and moderate or moderately rapid in the cobbly sediments. Slopes range from 0 to 35 percent.

Typical pedon of Montreal cobbly fine sandy loam, 1,375 feet north and 2,400 feet west of the southeast corner of sec. 9, T. 58 N., R. 29 W., Grant Township, Keweenaw County, Michigan; USGS Lake Medora 7.5-minute topographic quadrangle; lat. 47 degrees 26 minutes 04.48 seconds N. and long. 87 degrees 59 minutes 34.58 seconds W.

Oa—0 to 2 inches; black (7.5YR 2.5/1), well decomposed forest litter.

E—2 to 6 inches; brown (7.5YR 5/2) cobbly fine sandy loam, pinkish gray (7.5YR 7/2) dry; moderate medium granular structure; friable; many very fine to coarse roots; 10 percent gravel, 15 percent cobbles, 1 percent stones, and 1 percent boulders; very strongly acid; clear irregular boundary.

Bhs—6 to 11 inches; dark brown (7.5YR 3/3) cobbly fine sandy loam; moderate medium subangular blocky structure; friable; many very fine to coarse roots; 10 percent gravel, 15 percent cobbles, 1 percent stones, and 1 percent boulders; strongly acid; clear irregular boundary.

Bs—11 to 20 inches; dark brown (7.5YR 3/4) and brown (7.5YR 4/4) cobbly fine sandy loam; moderate fine and medium subangular blocky structure; friable; few fine and medium roots; few fine vesicular pores; few fine distinct strong brown (7.5YR 4/6) masses of iron accumulation; 10 percent gravel, 15 percent cobbles, 1 percent stones, and 1 percent boulders; strongly acid; clear wavy boundary.

2(E/B)x—20 to 33 inches; about 55 percent brown (7.5YR 5/3) very cobbly loamy fine sand (E), pinkish gray (7.5YR 7/2) dry (E), surrounding reddish brown (5YR 4/4) very cobbly fine sandy loam (Bt); moderate medium platy structure; very firm; few very fine and fine roots; common fine and medium vesicular pores; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; 15 percent gravel, 20 percent cobbles, 2 percent stones, and 1 percent boulders; moderately acid; clear wavy boundary.

2(B/E)x—33 to 51 inches; about 65 percent reddish brown (5YR 4/4) very cobbly fine sandy loam (Bt) surrounded by reddish brown (5YR 5/3) very cobbly loamy fine sand (E), pinkish gray (5YR 7/2) dry (E); moderate thick platy structure; firm; common fine and medium vesicular pores; common fine prominent reddish brown (2.5YR 4/4) masses of iron accumulation; 15 percent gravel, 20 percent cobbles, 2 percent stones, and 1 percent boulders; moderately acid; gradual wavy boundary.

2E/B—51 to 80 inches; about 75 percent light brown (7.5YR 6/3) cobbly loamy fine sand, pinkish gray (5YR 7/2) dry (E); massive; friable; surrounding reddish brown (5YR 4/4) cobbly fine sandy loam (B); moderate medium platy structure parting to moderate medium subangular blocky; friable; common fine prominent reddish brown (2.5YR 4/4) masses of iron accumulation; 10 percent gravel, 10 percent cobbles, 1 percent stones, and 1 percent boulders; slightly acid.

Munising Series

The Munising series consists of deep, moderately well drained soils on till plains and moraines. These soils formed in loamy and sandy glacial till. They have a fragipan. Permeability is moderate in the upper part of the profile, very slow in the fragipan, and moderate in the substratum. Slopes range from 1 to 35 percent.

Typical pedon of Munising loamy sand (fig. 20), 1,000 feet north and 1,100 feet east of the center of sec. 4, T. 51 N., R. 31 W., Arvon Township, Baraga County, Michigan:

A—0 to 1 inch; black (5YR 2/1) loamy sand, gray (5YR 5/1) dry; weak fine granular structure; friable; many roots; about 2 percent pebbles; very strongly acid; abrupt smooth boundary.

E—1 to 9 inches; pinkish gray (5YR 6/2) loamy sand; weak fine subangular blocky structure; friable; common roots; about 2 percent pebbles; very strongly acid; abrupt wavy boundary.

Bhs—9 to 13 inches; dark reddish brown (5YR 3/3) sandy loam; weak very coarse granular structure; friable; some strongly cemented tongues; many roots; about 2 percent pebbles; very strongly acid; clear wavy boundary.

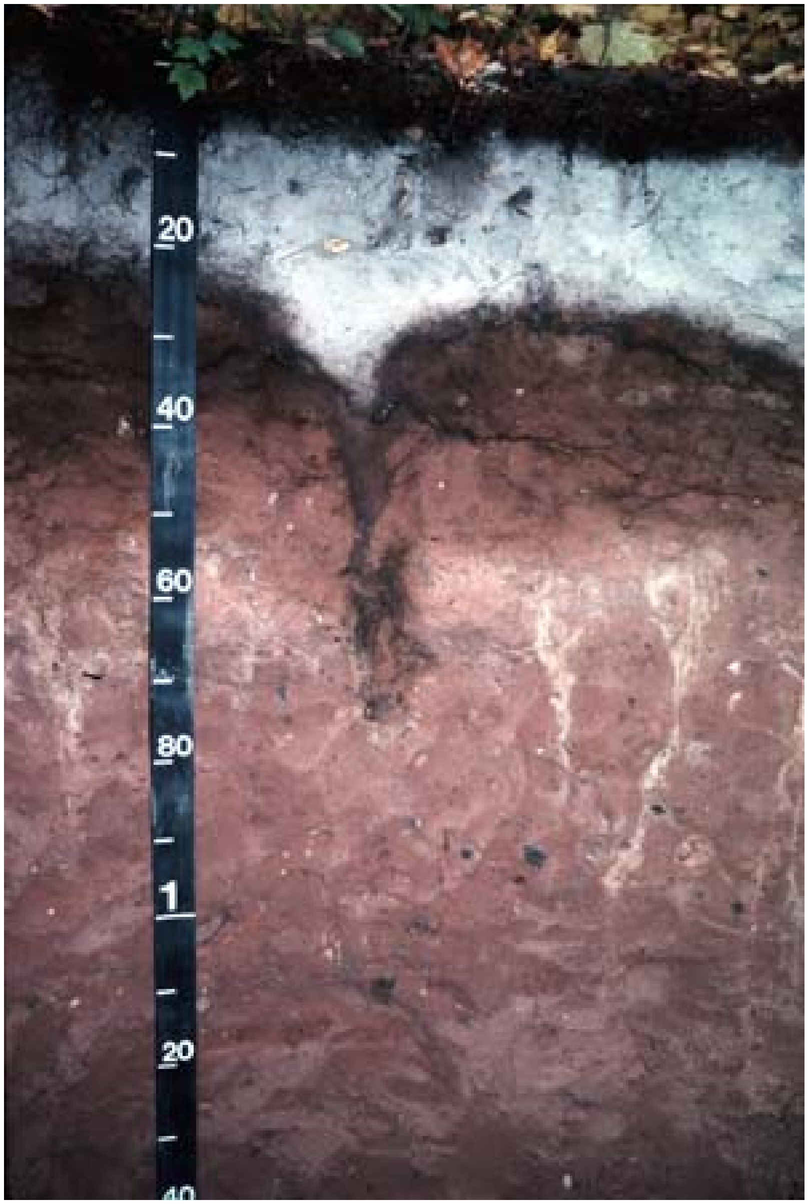


Figure 20.—Typical profile of a Munising soil. The vertical white streak in the B horizon indicates the location of the fragipan. Depth is marked in inches.

Bs—13 to 21 inches; reddish brown (5YR 4/3) sandy loam; weak coarse subangular blocky structure; friable; common roots; about 2 percent pebbles; very strongly acid; clear wavy boundary.

Bx—21 to 29 inches; reddish brown (2.5YR 4/4) loamy sand; few fine faint yellowish red (5YR 4/6) masses of iron accumulation; weak thick platy structure; slightly hard, firm; brittle; few roots; about 2 percent pebbles; very strongly acid; clear wavy boundary.

Ex—29 to 40 inches; pinkish gray (5YR 6/2) loamy sand; few reddish brown (2.5YR 4/4) pieces that appear to be remnants of a Bt horizon; massive; very hard, very firm; brittle; vesicular pores; about 2 percent pebbles; strongly acid; abrupt irregular boundary.

(B/E)x—40 to 48 inches; reddish brown (2.5YR 4/4) sandy loam (Bx); pinkish gray (5YR 6/2) tongues of loamy sand (Ex) as much as 2 inches thick; massive; very hard, very firm; brittle; vesicular pores; thin clay flows in root channels; about 2 percent pebbles; very strongly acid; clear wavy boundary.

Bt—48 to 62 inches; reddish brown (2.5YR 4/4) sandy loam; massive; friable; clay flows along vertical faces of peds and in pores; about 2 percent pebbles; very strongly acid; gradual wavy boundary.

C—62 to 80 inches; reddish brown (2.5YR 4/4) sandy loam; massive; friable; about 3 percent pebbles; moderately acid.

Nipissing Series

The Nipissing series consists of moderately deep, well drained soils on bedrock benches. These soils formed in gravelly and cobbly loamy and sandy material overlying igneous, metamorphic, or sedimentary bedrock. Permeability is moderately rapid in the upper part of the profile and very rapid in the lower part. Slopes range from 0 to 35 percent.

Typical pedon of Nipissing very cobbly silt loam, about 2,000 feet southwest and 100 feet southeast of Raspberry Island dock, Isle Royale National Park, NW$^1/_4$SW$^1/_4$ sec. 3, T. 66 N., R. 33 W., Houghton Township, Keweenaw County, Michigan:

Oi—0 to 1 inch; black (5YR 2/1) forest litter; many roots; abrupt smooth boundary.

Oe—1 to 3 inches; black (5YR 2/1), well decomposed leaf litter; many roots; abrupt smooth boundary.

E—3 to 4 inches; dark reddish gray (5YR 4/2) very cobbly silt loam; weak fine granular structure; very friable; many roots; about 30 percent gravel and 30 percent cobbles; very strongly acid; abrupt smooth boundary.

Bhs1—4 to 20 inches; dark reddish brown (5YR 2/2) extremely cobbly silt loam; weak fine granular structure; very friable; many roots; continuous black (5YR 2/1) coatings on rock fragment surfaces; about 30 percent gravel and 40 percent cobbles; moderately acid; gradual wavy boundary.

Bhs2—20 to 29 inches; very dusky red (2.5YR 2/2) extremely cobbly loam; weak fine granular structure; very friable; many roots; continuous black (5YR 2/1) coatings on rock fragment surfaces; decreasing fine earth in interstices with depth; about 30 percent gravel and 40 percent cobbles; moderately acid; clear smooth boundary.

Bs—29 to 35 inches; dark reddish brown (2.5YR 3/4) extremely cobbly loam; weak fine granular structure; very friable; many roots; black (5YR 2/1) coatings on rock fragment surfaces; a small amount of earth filling interstices 1 mm in diameter; about 30 percent gravel and 60 percent cobbles; moderately acid; gradual wavy boundary.

2C—35 to 39 inches; fragmental materials; single grain; loose; few roots; black (5YR 2/1) coatings on rock fragment surfaces; interstices between rock fragments unfilled; about 95 percent rock fragments (about 50 percent of which is cobbles and 45 percent is gravel); neutral; abrupt smooth boundary.

3R—39 inches; igneous bedrock.

Paavola Series

The Paavola series consists of very deep, moderately well drained soils on ground moraines and end moraines. These soils formed in gravelly or cobbly sandy deposits and in the underlying loamy or sandy glacial till. Permeability is very rapid in the upper part of the profile and very slow in the lower part. Slopes range from 1 to 35 percent.

Typical pedon of Paavola gravelly coarse sandy loam, 250 feet south and 300 feet west of the northeast corner of sec. 15, T. 55 N., R. 34 W., Quincy Township, Houghton County, Michigan:

Oi—0 to 2 inches; undecomposed hardwood and coniferous leaf litter.

A—2 to 6 inches; dark reddish brown (5YR 2/2) gravelly coarse sandy loam, pinkish gray (5YR 6/2) dry; moderate medium granular structure; friable; many roots; about 22 percent gravel and 10 percent cobbles; strongly acid; clear smooth boundary.

Bhs—6 to 15 inches; dark reddish brown (5YR 3/3) extremely gravelly coarse sand; weak fine subangular blocky structure; very friable; many roots; about 55 percent gravel and 20 percent cobbles; strongly acid; clear wavy boundary.

Bs1—15 to 21 inches; dark reddish brown (5YR 3/4) extremely gravelly coarse sand; weak fine subangular blocky structure; very friable; many roots; about 42 percent gravel and 20 percent cobbles; slightly acid; clear wavy boundary.

Bs2—21 to 31 inches; brown and dark brown (7.5YR 4/4) extremely gravelly coarse sand; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation; weak fine subangular blocky structure; friable; few roots; about 61 percent gravel and 20 percent cobbles; moderately acid; abrupt smooth boundary.

2E/Bx—31 to 39 inches; about 60 percent dark reddish gray (5YR 4/2) gravelly loamy fine sand (E); common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; surrounding peds of reddish brown (5YR 4/4) gravelly fine sandy loam (B); weak thin platy structure; very firm; common fine vesicular pores; few discontinuous faint reddish brown (5YR 4/3) clay films on faces of peds; about 12 percent gravel and 5 percent cobbles; strongly acid; clear wavy boundary.

2Btx—39 to 60 inches; reddish brown (5YR 4/4) gravelly sandy loam; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; weak medium platy structure; very firm; few very fine vesicular pores; few faint reddish brown (5YR 4/3) clay films on faces of peds; about 28 percent gravel and 5 percent cobbles; strongly acid; clear wavy boundary.

2Cd—60 to 70 inches; reddish brown (5YR 4/4) very gravelly sandy loam; weak thin platy structure parting to weak fine subangular blocky; very firm; about 21 percent gravel and 15 percent cobbles; moderately acid.

Pelkie Series

The Pelkie series consists of deep, moderately well drained, rapidly permeable soils on flood plains. These soils formed in sandy alluvium. Slopes range from 0 to 3 percent.

Typical pedon of Pelkie loamy very fine sand, 1,056 feet west of the southeast corner of sec. 28, T. 51 N., R. 34 W., Baraga Township, Baraga County, Michigan:

Ap—0 to 8 inches; brown (7.5YR 5/4) loamy very fine sand, light brown (7.5YR 6/4) dry; weak fine subangular blocky structure parting to weak fine granular; very friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

C1—8 to 16 inches; light reddish brown (5YR 6/3) fine sand; weak fine subangular blocky structure parting to weak medium granular; very friable; common fine roots; strongly acid; abrupt smooth boundary.

C2—16 to 32 inches; reddish brown (5YR 5/4) fine sand; weak fine subangular blocky structure parting to weak medium granular; very friable; common fine roots; strongly acid; abrupt smooth boundary.

C3—32 to 60 inches; light reddish brown (5YR 6/4) sand; common fine faint yellowish red (5YR 5/6) masses of iron accumulation; single grain; loose; few fine roots; very strongly acid.

Rubicon Series

The Rubicon series consists of deep, excessively drained, rapidly permeable soils on outwash plains, lake plains, and moraines. These soils formed in sandy material. Slopes range from 1 to 50 percent.

Typical pedon of Rubicon sand, 2,500 feet south of the center of sec. 17, T. 50 N., R. 34 W., Baraga Township, Baraga County, Michigan:

A—0 to 2 inches; very dark gray (5YR 3/1) sand, dark gray (10YR 4/1) dry; weak medium granular structure; very friable; many roots; very strongly acid; clear irregular boundary.

E—2 to 7 inches; brown (7.5YR 5/2) sand; weak fine subangular blocky structure; very friable; many roots; very strongly acid; clear wavy boundary.

Bs1—7 to 9 inches; reddish brown (5YR 4/4) sand; weak fine subangular blocky structure; very friable; many roots; strongly acid; abrupt irregular boundary.

Bs2—9 to 13 inches; yellowish red (5YR 4/6) sand; weak fine subangular blocky structure parting to weak fine granular; very friable; common roots; moderately acid; clear irregular boundary.

BC—13 to 26 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few roots; moderately acid; clear wavy boundary.

C—26 to 60 inches; brown (7.5YR 5/4) sand; single grain; loose; moderately acid.

Sabattis Series

The Sabattis series consists of very deep, very poorly drained soils on till plains. These soils formed in loamy deposits. Permeability is moderate in the surface layer and subsoil and moderately slow or moderate in the substratum. Slopes range from 0 to 4 percent.

Typical pedon of Sabattis very cobbly muck, in an area of Gratiot-Sabattis complex, 12 to 50 percent slopes, on a northwest-facing slope of 44 percent in a forested area at an elevation of 1,160 feet; 1,180 feet east and 200 feet north of the southwest corner of sec. 25, T. 58 N., R. 31 W., Houghton Township, Keweenaw County, Michigan; USGS Eagle Harbor 7.5-minute topographic quadrangle; lat. 47 degrees 23 minutes 14.75 seconds N. and long. 88 degrees 11 minutes 21.95 seconds W.

Oa—0 to 8 inches; black (7.5YR 2.5/1) very cobbly muck, very dark brown (7.5YR 2.5/2) dry; 2 percent fiber rubbed; weak fine granular structure; very friable; many very fine to coarse roots; 15 percent gravel, 25 percent cobbles, and 5 percent stones; slightly acid; clear wavy boundary.

A—8 to 12 inches; black (7.5YR 2.5/1) very cobbly very fine sandy loam, very dark brown (7.5YR 2.5/2) dry; weak medium subangular blocky structure parting to weak fine granular; very friable; many very fine to coarse roots; 15 percent gravel, 25 percent cobbles, and 5 percent stones; slightly acid; gradual wavy boundary.

Bg—12 to 17 inches; dark grayish brown (2.5Y 4/2) cobbly very fine sandy loam; weak medium subangular blocky structure; friable; few very fine and fine roots; many medium faint dark gray (2.5Y 4/1) iron depletions and many medium distinct olive brown (2.5Y 4/4) masses of iron accumulation; 10 percent gravel, 5 percent cobbles, and 2 percent stones; slightly acid; gradual wavy boundary.

C1—17 to 26 inches; brown (10YR 4/3) cobbly very fine sandy loam; massive; friable; many medium faint dark grayish brown (10YR 4/2) iron depletions and many medium distinct olive brown (2.5Y 4/4) masses of iron accumulation; 10 percent gravel, 5 percent cobbles, and 2 percent stones; neutral; clear wavy boundary.

C2—26 to 32 inches; brown (10YR 5/3) cobbly very fine sandy loam; massive; friable; many medium distinct olive brown (2.5Y 4/4) masses of iron accumulation; 10

percent gravel, 5 percent cobbles, and 2 percent stones; moderately alkaline; clear smooth boundary.

2C3—32 to 37 inches; brown (7.5YR 4/3) cobbly fine sandy loam; massive; friable; common fine faint brown (7.5Y 4/4) masses of iron accumulation; 20 percent gravel, 10 percent cobbles, and 3 percent stones; moderately alkaline; clear smooth boundary.

2C4—37 to 80 inches; dark grayish brown (10YR 4/2) very cobbly sandy loam; massive; friable; 20 percent gravel, 20 percent cobbles, and 5 percent stones; moderately alkaline.

Shelldrake Series

The Shelldrake series consists of very deep, excessively drained, very rapidly permeable soils on beach ridges and dunes. These soils formed in sandy beach deposits. Slopes range from 0 to 8 percent.

Typical pedon of Shelldrake sand, 4,200 feet south and 400 feet west of the northeast corner of sec. 34, T. 58 N., R. 29 W.; Grant Township, Keweenaw County, Michigan; USGS Big Bay topographic quadrangle; lat. 47 degrees 02 minutes 34.64 seconds N. and long. 87 degrees 57 minutes 56.15 seconds W.

Oe—0 to 1 inch; black (7.5YR 2.5/1), partially decomposed forest litter.

E—1 to 6 inches; brown (7.5YR 5/2) sand, pinkish gray (7.5YR 7/2) dry; weak medium subangular blocky structure; very friable; many very fine to coarse roots; strongly acid; clear smooth boundary.

Bw—6 to 13 inches; light brown (7.5YR 6/4) sand; weak medium subangular blocky structure; very friable; many very fine to coarse roots; strongly acid; gradual smooth boundary.

BC—13 to 23 inches; very pale brown (10YR 6/3) sand; single grain; loose; common very fine to medium roots; moderately acid; gradual smooth boundary.

C—23 to 80 inches; pale brown (10YR 7/3) sand; single grain; loose; few very fine to medium roots; moderately acid.

Skandia Series

The Skandia series consists of very poorly drained soils in depressions and drainageways on sandstone benches. These soils formed in organic deposits overlying sandstone bedrock. Permeability is moderate or moderately rapid in the organic material. Slopes range from 0 to 2 percent.

Typical pedon of Skandia mucky peat, 330 feet south and 2,475 feet east of the northwest corner of sec. 20, T. 51 N., R. 26 W., Powell Township, Marquette County, Michigan:

Oe—0 to 4 inches; mucky peat, dark grayish brown (10YR 4/2) broken face and pressed, very dark grayish brown (10YR 3/2) rubbed; about 80 percent fiber, 40 percent rubbed; weak medium platy structure; primarily sphagnum moss fibers; many very fine to coarse roots; extremely acid; clear smooth boundary.

Oa—4 to 26 inches; muck, black (10YR 2/1) broken face, rubbed, and pressed; about 10 percent fiber, 2 percent rubbed; weak medium subangular blocky structure; primarily herbaceous fibers; many very fine to coarse roots; extremely acid; abrupt smooth boundary.

2Cr—26 to 31 inches; dark reddish brown (2.5YR 3/4), weathered sandstone bedrock; massive; firm; extremely acid; clear wavy boundary.

2R—31 inches; dusky red (2.5YR 3/2) sandstone bedrock.

Skanee Series

The Skanee series consists of very deep, somewhat poorly drained soils on till plains. These soils formed in loamy and sandy glacial till. They have a fragipan. Permeability is moderate in the upper part of the subsoil, very slow in the fragipan, and moderate in the underlying material. Slopes range from 0 to 6 percent.

Typical pedon of Skanee fine sandy loam (fig. 21), 2,700 feet west and 100 feet south of the northeast corner of sec. 34, T. 52 N., R. 36 W., Elm River Township, Houghton County, Michigan:

Oa—0 to 2 inches; black (N 2/0), well decomposed leaf litter; many roots; abrupt smooth boundary.

E—2 to 8 inches; pinkish gray (5YR 6/2) fine sandy loam; few fine faint reddish gray (5YR 5/2) masses of iron accumulation; moderate medium subangular blocky structure; friable; few roots; about 3 percent gravel; very strongly acid; abrupt smooth boundary.

Bhs—8 to 14 inches; dark reddish brown (5YR 3/3) fine sandy loam; few medium faint dark reddish brown (5YR 3/4) masses of iron accumulation; moderate medium subangular blocky structure; friable; few roots; about 3 percent gravel; very strongly acid; abrupt smooth boundary.

E/Bx—14 to 31 inches; about 60 percent reddish brown (5YR 5/3) fine sandy loam (E); few fine distinct yellowish red (5YR 5/6) masses of iron accumulation; surrounding peds of reddish brown (5YR 4/4) fine sandy loam (Bt); massive; very firm; common clay films on faces of peds; about 3 percent gravel; strongly acid; clear smooth boundary.

Bt—31 to 42 inches; reddish brown (2.5YR 4/4) sandy clay loam; massive; friable; common clay films on faces of peds; about 3 percent gravel; moderately acid; clear smooth boundary.

C—42 to 60 inches; reddish brown (2.5YR 4/4) sandy loam; massive; friable; about 3 percent gravel; moderately acid.

Sturgeon Series

The Sturgeon series consists of deep, somewhat poorly drained soils on flood plains. These soils formed in silty and sandy alluvium. Permeability is moderate in the upper part of the profile and rapid in the lower part. Slopes are 0 to 1 percent.

Typical pedon of Sturgeon silt loam, 460 feet east and 300 feet north of the southwest corner of sec. 2, T. 51 N., R. 34 W., Baraga Township, Baraga County, Michigan:

Ap—0 to 8 inches; reddish brown (5YR 4/3) silt loam, pink (5YR 7/3) dry; moderate fine granular structure; friable; many roots; moderately acid; abrupt smooth boundary.

C1—8 to 18 inches; reddish brown (5YR 4/3) silt loam; common fine faint strong brown (7.5YR 5/6) masses of iron accumulation; moderate fine and medium granular structure; friable; common roots; moderately acid; abrupt smooth boundary.

C2—18 to 24 inches; reddish brown (5YR 4/4) silt loam; few fine faint yellowish red (5YR 4/6) masses of iron accumulation; moderate fine and medium granular structure; friable; common roots; moderately acid; abrupt smooth boundary.

C3—24 to 30 inches; reddish brown (5YR 5/3) silt loam; many fine distinct yellowish red (5YR 5/8) masses of iron accumulation; weak fine subangular blocky structure; friable; moderately acid; abrupt smooth boundary.

C4—30 to 60 inches; brown (7.5YR 5/4) fine sand; massive; friable; moderately acid.

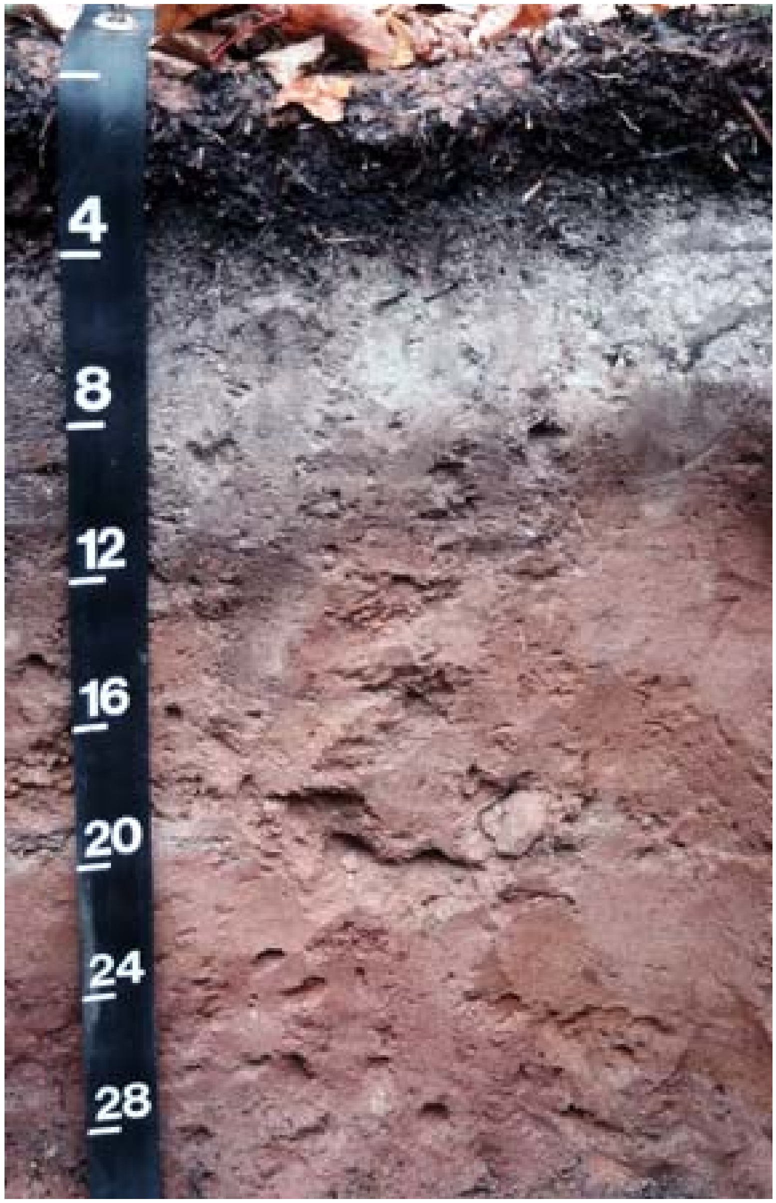


Figure 21.—Typical profile of a Skanee soil. The B horizon has mottled colors, indicating a seasonal high water table. Depth is marked in inches.

Tawas Series

The Tawas series consists of very deep, very poorly drained soils in depressions and drainageways on outwash plains, till-floored lake plains, ground moraines, disintegration moraines, and bedrock-controlled moraines. These soils formed in organic deposits overlying sandy outwash. Permeability is moderately rapid to moderately slow in the organic part of the profile and rapid in the sandy part. Slopes range from 0 to 4 percent.

Typical pedon of Tawas muck, 1,650 feet south and 1,950 feet west of the northeast corner of sec. 7, T. 47 N., R. 25 W., Sands Township, Marquette County, Michigan; lat.

46 degrees 29 minutes 15.41 seconds N. and long. 87 degrees 28 minutes 38.46 seconds W.

Oa1—0 to 6 inches; muck, black (N 2.5/0) broken face and rubbed; about 5 percent fiber, less than 1 percent rubbed; moderate fine granular structure; many very fine to coarse roots; moderately acid; gradual smooth boundary.

Oa2—6 to 15 inches; muck, black (10YR 2/1) broken face and rubbed; about 25 percent fiber, 5 percent rubbed; weak thin platy structure; moderately acid; clear smooth boundary.

Oa3—15 to 25 inches; muck, black (10YR 2/1) broken face and rubbed; about 90 percent fiber, 15 percent rubbed; weak medium platy structure; moderately acid; abrupt smooth boundary.

Cg—25 to 80 inches; grayish brown (10YR 5/2) sand; single grain; loose; neutral.

Trimountain Series

The Trimountain series consists of very deep, well drained soils on ground moraines and end moraines. These soils formed in a loamy mantle over gravelly, loamy, and sandy glacial till. They have a fragipan. Permeability is moderate in the upper part of the profile, very slow in the fragipan, and moderate or moderately rapid in the lower part. Slopes range from 15 to 60 percent.

Typical pedon of Trimountain cobbly fine sandy loam, 1,850 feet west and 1,850 feet north of the southeast corner of sec. 24, T. 54 N., R. 35 W., Adams Township, Houghton County, Michigan:

Oa—0 to 1 inch; black (N 2/0), decomposed forest litter; many fine and medium roots; clear wavy boundary.

E—1 to 5 inches; dark reddish gray (5YR 4/2) cobbly fine sandy loam; weak fine subangular blocky structure; very friable; many roots; about percent gravel and 11 percent cobbles; extremely acid; clear wavy boundary.

Bhs—5 to 11 inches; dark reddish brown (5YR 3/3) fine sandy loam; moderate medium subangular blocky structure; very friable; many roots; about 8 percent gravel and 2 percent cobbles; very strongly acid; clear wavy boundary.

Bs—11 to 27 inches; reddish brown (5YR 4/4) gravelly fine sandy loam; moderate medium subangular blocky structure; friable; common fine and medium and few coarse roots; about 18 percent gravel and 2 percent cobbles; very strongly acid; clear wavy boundary.

2E/Bx—27 to 34 inches; about 60 percent reddish brown (5YR 5/3) gravelly loamy sand (E); surrounding peds of reddish brown (2.5YR 4/4) gravelly fine sandy loam (Bt); weak thin platy structure; very firm; few roots; common fine vesicular pores; few faint reddish brown (5YR 4/4) clay films in pores and root channels; about 17 percent gravel and 6 percent cobbles; very strongly acid; clear wavy boundary.

2Btx—34 to 46 inches; reddish brown (5YR 4/4) gravelly loamy sand; massive; very firm; few very fine vesicular pores; few faint reddish brown (5YR 4/3) clay films in pores; about 30 percent gravel and 3 percent cobbles; very strongly acid; gradual wavy boundary.

2C1—46 to 56 inches; reddish brown (5YR 4/4) gravelly fine sand; massive; firm; about 17 percent gravel and 3 percent cobbles; strongly acid; clear wavy boundary.

3C2—56 to 80 inches; reddish brown (5YR 4/4) extremely gravelly coarse sand; massive; friable; about 65 percent gravel and 3 percent cobbles; strongly acid.

Waiska Series

The Waiska series consists of excessively drained soils on glacial lake benches, stream terraces, and outwash plains. These soils formed in gravelly and sandy material. Permeability is very rapid. Slopes range from 0 to 60 percent.

Typical pedon of Waiska sand (fig. 22), on a convex slope of 5 percent in a forested area, 2,475 feet south and 165 feet east of the northwest corner of sec. 33, T. 51 N., R. 31 W., Arvon Township, Baraga County, Michigan:

Oe—0 to 1 inch; dark reddish brown (5YR 2/2), partially decomposed leaf litter; weak fine granular structure; very friable; many roots; strongly acid; abrupt smooth boundary.

E—1 to 4 inches; brown (7.5YR 4/2) sand; weak fine granular structure; very friable; many roots; about 5 percent gravel; strongly acid; abrupt smooth boundary.

Bhs—4 to 8 inches; dark reddish brown (5YR 3/3) gravelly sand; weak fine subangular blocky structure parting to single grain; very friable to loose; many roots; about 15 percent gravel; strongly acid; abrupt smooth boundary.

Bs1—8 to 11 inches; brown (7.5YR 4/4) gravelly sand; single grain; loose; common roots; about 20 percent gravel; strongly acid; clear smooth boundary.

Bs2—11 to 18 inches; strong brown (7.5YR 4/6) very gravelly sand; single grain; loose; few roots; about 50 percent gravel; strongly acid; gradual smooth boundary.

BC—18 to 35 inches; strong brown (7.5YR 5/6) very gravelly sand; single grain; loose; few roots; about 50 percent gravel; strongly acid; clear smooth boundary.

C—35 to 60 inches; yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4) very gravelly sand with strata of coarse sand; single grain; loose; about 50 percent gravel; strongly acid.

Wallace Series

The Wallace series consists of very deep, well drained soils on dunes and outwash plains. These soils formed in sandy sediments. Permeability is moderate or moderately rapid in the part of the profile that contains ortstein and rapid in other parts of the profile. Slopes range from 1 to 50 percent.

Typical pedon of Wallace sand (fig. 23), 300 feet west and 1,630 feet south of the northeast corner of sec. 30, T. 58 N., R. 27 W., Grant Township, Keweenaw County, Michigan:

Oa—0 to 1.5 inches; reddish black (2.5YR 2.5/1), well decomposed forest litter.

Oe—1.5 to 4 inches; very dusky red (2.5YR 2.5/2), well decomposed forest litter.

A—4 to 5 inches; black (7.5YR 2.5/1) sand, very dark brown (7.5YR 2.5/2); weak fine granular structure; very friable; many very fine to coarse roots; very strongly acid; clear broken boundary.

E1—5 to 19 inches; pinkish gray (7.5YR 6/2) sand, pinkish white (7.5YR 8/2) dry; weak fine granular structure; very friable; many very fine to coarse roots; very strongly acid; abrupt irregular boundary.

E2—19 to 22 inches; light brown (7.5YR 6/3) sand, pinkish gray (7.5YR 7/2) dry; weak fine granular structure; very friable; many fine and few coarse roots; very strongly acid; abrupt broken boundary.

Bhsm1—22 to 28 inches; dark reddish brown (2.5YR 2.5/2) sand; strong very coarse subangular blocky structure; rigid; few fine roots; dark reddish brown (2.5YR 2.5/2) very strongly cemented ortstein occupies 97 percent of the horizon; very strongly acid; abrupt irregular boundary.

Figure 22.—Typical profile of a Waiska soil. The B horizon has a large amount of gravel and stones. Depth is marked in inches.

Bhsm2—28 to 31 inches; dark reddish brown (2.5YR 3/2) sand; strong very coarse subangular blocky structure; slightly rigid; few very fine roots; dark reddish brown (2.5YR 2.5/2) very strongly cemented ortstein occupies 90 percent of the horizon; very strongly acid; abrupt broken boundary.

Bsm—31 to 37 inches; brown (7.5YR 4/4) sand; strong very coarse subangular blocky structure; rigid; few fine roots; brown (7.5YR 4/4) very strongly cemented ortstein occupies 99 percent of the horizon; very strongly acid; clear irregular boundary.

Bs1—37 to 52 inches; strong brown (7.5YR 4/6) sand; strong very coarse subangular blocky structure; firm; few fine and medium roots; dark reddish brown (5YR 3/3) strongly cemented ortstein occupies 74 percent of the horizon (12 percent of the horizon occurs as columns of ortstein extending from the Bhsm1 horizon into the Bs1 horizon); very strongly acid; clear irregular boundary.

Bs2—52 to 62 inches; strong brown (7.5YR 4/6) sand; moderate coarse subangular blocky structure; firm; few very fine to medium roots; dark brown (7.5YR 3/4) strongly cemented ortstein occupies 49 percent of the horizon (8 percent of the horizon occurs as columns of ortstein extending from the Bhsm2 horizon into the Bs2 horizon); very strongly acid; clear wavy boundary.

BC—62 to 74 inches; dark yellowish brown (10YR 4/6) sand; weak medium subangular blocky structure; very friable; strongly acid; clear wavy boundary.

C—74 to 80 inches; yellowish brown (10YR 5/6) sand; single grain; loose; strongly acid.

Figure 23.—Typical profile of a Wallace soil. The dark layer below the white E horizon consists of ortstein cementation. Depth is marked in inches.

Yalmer Series

The Yalmer series consists of deep, moderately well drained soils on till plains and moraines. These soils formed in sandy and loamy glacial till. They have a fragipan. Permeability is rapid in the upper part of the subsoil, slow in the fragipan, and moderate in the substratum. Slopes range from 1 to 35 percent.

Typical pedon of Yalmer loamy sand, 1,300 feet north and 100 feet west of the center of sec. 32, T. 50 N., R. 33 W., L'Anse Township, Baraga County, Michigan:

Oe—0 to 1 inch; dark reddish brown (5YR 3/2), partially decomposed forest litter.

A—1 to 3 inches; black (5YR 2/1) loamy sand, dark gray (5YR 4/1) dry; weak fine granular structure; very friable; many roots; about 3 percent pebbles; extremely acid; abrupt smooth boundary.

E—3 to 8 inches; reddish gray (5YR 5/2) loamy sand; weak medium and fine subangular blocky structure; very friable; common roots; about 3 percent pebbles; extremely acid; abrupt wavy boundary.

Bhs—8 to 11 inches; dark reddish brown (5YR 3/3) sand; weak fine subangular blocky structure; very friable; many roots; about 40 percent ortstein; about 3 percent pebbles; extremely acid; abrupt irregular boundary.

Bs1—11 to 15 inches; yellowish red (5YR 4/6) fine sand; weak fine subangular blocky structure; very friable; few roots; about 40 percent ortstein; about 3 percent pebbles; extremely acid; clear wavy boundary.

Bs2—15 to 24 inches; yellowish red (5YR 5/6) fine sand; weak fine subangular blocky structure; very friable; few roots; about 6 percent pebbles; very strongly acid; abrupt wavy boundary.

2E/Bx—24 to 29 inches; about 70 percent reddish gray (5YR 5/2) loamy fine sand (E) surrounding peds of dark reddish brown (2.5YR 3/4) fine sandy loam (Bt); common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; weak medium subangular blocky structure; firm; few roots; many pores; about 10 percent pebbles; very strongly acid; clear broken boundary.

2B/Ex—29 to 40 inches; about 65 percent dark reddish brown (2.5YR 3/4) fine sandy loam (Bt); reddish gray (5YR 5/2) loamy fine sand (E); weak very coarse subangular blocky structure; very firm; about 10 percent pebbles; many pores; dusky red (2.5YR 3/2) clay flows in pores and on faces of peds; very strongly acid; gradual wavy boundary.

2Bt—40 to 66 inches; reddish brown (2.5YR 4/4) fine sandy loam; moderate medium platy structure parting to weak medium subangular blocky; firm; about 5 percent pebbles; many pores; dark red (2.5YR 3/6) clay flows on faces of peds; strongly acid; clear wavy boundary.

2C—66 to 70 inches; reddish brown (2.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; about 15 percent pebbles; moderately acid.

Zeba Series

The Zeba series consists of moderately deep, somewhat poorly drained, moderately permeable soils on till plains and sandstone benches. These soils formed in loamy and sandy glacial till over sandstone bedrock. Slopes range from 0 to 3 percent.

Typical pedon of Zeba sandy loam, 1,450 feet north and 150 feet east of the southwest corner of sec. 31, T. 52 N., R. 31 W., Arvon Township, Baraga County, Michigan:

A—0 to 2 inches; very dark gray (10YR 3/1) sandy loam, light gray (10YR 7/1) dry; moderate medium granular structure; friable; many roots; very strongly acid; abrupt smooth boundary.

E—2 to 5 inches; grayish brown (10YR 5/2) sandy loam; few fine distinct dark yellowish brown 10YR 4/6) and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation; moderate medium subangular blocky structure; friable; common roots; very strongly acid; clear smooth boundary.

Bs—5 to 13 inches; dark brown (7.5YR 4/4) fine sandy loam; few fine distinct yellowish red (5YR 5/8) masses of iron accumulation; moderate medium subangular blocky structure; friable; common roots; about 5 percent pebbles; moderately acid; clear smooth boundary.

E´—13 to 21 inches; reddish brown (5YR 5/3) sandy loam; many medium distinct yellowish red (5YR 5/8) masses of iron accumulation; moderate medium subangular blocky structure; friable; few roots; about 5 percent pebbles; moderately acid; clear smooth boundary.

B/E—21 to 33 inches; reddish brown (2.5YR 4/4) sandy loam (Bt) and reddish gray (5YR 5/2) loamy sand (E); common medium distinct yellowish red (5YR 5/6) masses of iron accumulation; weak coarse subangular blocky structure; firm; common pores; few clay flows on faces of peds; about 5 percent pebbles; strongly acid; abrupt smooth boundary.

2R—33 inches; sandstone bedrock.

Formation of the Soils

This section describes the factors of soil formation and relates them to the soils in the survey area. It also describes the processes of soil formation.

Factors of Soil Formation

Soil forms through the interaction of five major factors. These are the physical, chemical, and mineral composition of the parent material; the climate under which the soil material has accumulated and has existed since accumulation; the plant and animal life on and in the soil; the relief, or topography; and the length of time that the processes of soil formation have acted on the parent material (Jenny, 1941).

Climate and plant and animal life are the active forces of soil formation. They slowly change the parent material into a natural body of soil that has genetically related layers, called horizons. The effects of climate and plant and animal life are conditioned by relief. The nature of the parent material affects the kind of soil profile that is formed and in extreme cases determines it almost entirely. Finally, time changes the parent material into a soil. Generally, a long time is required for the formation of distinct horizons.

The factors of soil formation are so closely interrelated in their effects on the soil hat few generalizations can be made about the effect of any one factor unless conditions are specified for the other four. Many of the processes of soil formation are unknown.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. The parent material of the soils in Keweenaw County was deposited by glaciers or by meltwater from the glaciers. Some of this material was subsequently reworked by water and wind. The glaciers covered the county about 12,000 years ago. Parent material determines the chemical and mineralogical composition of the soil. Although the soils in the county have parent material of common glacial origin, the properties of the parent material vary greatly, sometimes within a small area, depending on how the material was deposited. The dominant parent materials in Keweenaw County were deposited as bedrock-controlled till, outwash material, lake sediment, alluvium, or organic material.

Glacial till is material that was deposited directly by glaciers with a minimum of water action. It consists of a mixture of particles of different sizes. The small pebbles in till have sharp corners, indicating that they have not been worn by water. The till in Keweenaw County generally is calcareous loamy sand, sandy loam, and loam. Trimountain soils formed in till. Typically, they are coarse-loamy and have moderately strongly developed structure.

Outwash material was deposited by running water from melting glaciers. The size of the particles that make up outwash material depends on the speed of the water that carried them. When the water slows down, the coarser particles are deposited. The finer particles, such as very fine sand, silt, and clay, are carried by slowly moving water. Outwash deposits generally consist of layers of particles of similar size, such as sand, coarse sand, and gravel. Waiska soils are examples of soils that formed in outwash material.

Lake sediment is material that settled from still or slowly moving, deep lake water and from shallow, high-energy water near shorelines. Lake sediments are well sorted, and the size of the particles depends on the speed of the water that suspends them. Deford soils are examples of sandy soils that formed in parent material deposited in sandbars on a shallow lake bottom. Deer Park soils are examples of sandy soils that formed in dune material deposited on a lake shoreline.

Alluvial material has been deposited by floodwater of present streams in recent time. The texture of this material depends on the speed of the water that deposited the material. Arnheim soils are alluvial soils.

Organic material is made up of plant remains. After the glaciers receded from the area, water was left standing in depressions on outwash plains, flood plains, and till plains. Grasses and sedges that grew around the edge of these depressions died. Because of the wetness, when the plants died their remains did not decompose but accumulated around the edge of the depressions. Later, water-tolerant trees grew in these areas. As these trees died, their residue became part of the organic accumulation. Consequently, the depressions were eventually filled with organic material and developed into areas of muck. Lupton soils are examples of soils that formed in organic material.

Plant and Animal life

Green plants have been the principal organism influencing the soils in Keweenaw County. Bacteria, fungi, earthworms, and humans also have been important. The chief contribution of plant and animal life is the addition of organic matter and nitrogen to the soil. The kind of organic matter on and in the soil depends on the kinds of plants that grew on the soil. The residue of these plants accumulates on the surface of the soil. It decays and eventually becomes organic matter. Plant roots provide channels for the downward movement of water through the soil and add organic matter to the soil as they decay. Bacteria in the soil help to break down the organic material into a form that can be used by plants.

The vegetation in Keweenaw County was a mixture of coniferous and deciduous forest. Differences in natural soil drainage and changes in parent material affect the composition of forests.

In general, the well drained upland soils, such as Rubicon and Croswell soils, were covered with red oak and white pine. Trimountain and Lac La Belle soils were covered with sugar maple and red maple. The very poorly drained soils were covered with cedar, black spruce, and tamarack. Dawson and Loxley soils, which formed under wet conditions, contain a considerable amount of organic matter.

Climate

Climate is important in the formation of soils. It determines the kind of plant and animal life on and in the soil and determines the amount of water available for the weathering of minerals and the transporting of soil materials. Through its influence on soil temperature, climate determines the rate of chemical reactions in the soil. These climatic influences generally affect areas larger than a county.

The climate in Keweenaw County is cool and humid. Presumably, it is similar to the climate under which the soils formed. The soils in Keweenaw County differ from soils that formed in a dry, warm climate or from those that formed in a moist, hot climate. Climate is uniform throughout the county, but its effect is modified locally by the proximity to Lake Superior. The minor differences in the soils in Keweenaw County are partially the result of climatic differences.

Relief

Relief, or topography, has had a marked influence on the formation of the soils in Keweenaw County through its influence on natural drainage, erosion, plant cover, and soil temperature. Slopes in the county range from 0 to 90 percent. Natural drainage classes range from excessively drained on hilltops to very poorly drained in depressions.

Relief influences the formation of soil by affecting runoff and drainage. Drainage in turn, through its effect on aeration of the soil, determines the color of the soil. Runoff is most rapid on the steeper slopes, but in low areas, water can be temporarily ponded.

Water and air move freely through well drained soils but slowly through very poorly drained soils. In soils that are well aerated, the iron and aluminum compounds that give most soils their color are brightly colored and are oxidized. Poorly aerated soils are dull gray and mottled. Waiska soils are examples of well drained, well aerated soils; Deford and Kinross soils are examples of very poorly drained, poorly aerated soils. All of these soils formed in similar parent material.

Time

Generally, a long time is required for the development of distinct horizons in a soil. The differences in the length of time that the parent material has been in place are commonly reflected in the degree of development of the soil profile. Some soils form rapidly; others form slowly.

The soils in Keweenaw County range from young to mature. The glacial deposits in which many of the soils formed have been exposed to soil-forming factors long enough for distinct horizons to develop. Some soils that formed in recent alluvial sediments have not been in place long enough for the development of distinct horizons. Pelkie soils, which formed in alluvial materials, are young soils. Gratiot soils show the effects of leaching of lime from the soil, which has taken place over a long period of time.

Processes of Soil Formation

The process responsible for the development of the soil horizons from unconsolidated parent material is referred to as soil genesis. Soil morphology describes the physical, chemical, and biological properties of these horizons.

Several processes were involved in the development of soil horizons in Keweenaw County. These processes include the accumulation of organic matter; the leaching of lime (calcium carbonate) and other bases; the reduction and transfer of iron; and the formation and translocation of clay minerals. In most soils, more than one of these processes have been active in the development of horizons.

Organic material accumulates at the surface to form an A horizon. If the soil is plowed, the surface horizon is mixed into a plow layer, or Ap horizon. In the soils of Keweenaw County, the content of organic matter in the surface layer ranges from very high to low. For example, Deford soils have a very high content of organic matter in the surface layer; Pelkie soils have a low content of organic matter.

Leaching of carbonates and other bases has occurred in most of the soils. Soil scientists generally agree that leaching of bases in soils precedes the translocation of clay minerals. Many of the soils in Keweenaw County are moderately or strongly leached. Gratiot soils are leached of carbonates to a depth of 30 to 40 inches. Munising soils are leached to a depth of more than 80 inches. The variation in the depth of leaching is a result of time, relief, and parent material.

The reduction and transfer of iron, a process called gleying, is evident in the somewhat poorly drained, poorly drained, and very poorly drained soils. The gray or dull color in the subsoil indicates the reduction and loss of iron.

Translocation of clay minerals has contributed to horizon development. An eluviated, or leached, E horizon above an illuviated B horizon has a lower content of clay than the B horizon and typically is lighter in color. The B horizon typically has an accumulation of clay and clay films in pores and on the faces of peds. The soils displaying this translocation of clay were probably leached of carbonates and soluble salts to a considerable extent before the translocation of clay took place. Leaching of bases and translocation of clays are among the more important processes in horizon differentiation. Skanee soils are characterized by translocated clay, in the form of clay films, that has accumulated in the B horizon.

In some soils, iron, aluminum, and humus have moved from the surface layer to the B horizon. The B horizon in such soils commonly is dark brown or dark reddish brown. Wallace, Borgstrom, and Garlic soils are examples of soils in which translocated iron, aluminum, and humus have affected the B horizon.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

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.

Bottom land. The normal flood plain of a stream, subject to flooding.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing.

To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

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.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clayey textures (in map unit descriptions). Equipment use and other uses are limited because of the clayey texture in the surface layer and the subsoil.

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.

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.

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."

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cutbanks caving (in map unit descriptions). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to bedrock (in map unit descriptions). Equipment use and other uses are limited by the depth to bedrock.

Depth to soft bedrock (in map unit descriptions). Soft bedrock is within a depth of 40 inches.

Dissected slopes (in map unit descriptions). Equipment use and other uses are limited by the steep side slopes.

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.

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.

Droughtiness (in map unit descriptions). The soil holds too little water for plants during dry periods.

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 of till that is being produced or has been 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.

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.

Erodibility (in map unit descriptions). The soil erodes easily as a result of surface water runoff.

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 (in map unit descriptions). The soil has a potential for erosion during forestland management activities.

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.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess humus (in map unit descriptions). Equipment use and other uses are limited because of the large amount of organic material.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Flat. A general term for a level or nearly level surface, or a small area of land marked by little or no relief.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

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.

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 moraine. An extensive, fairly even layer of till having an uneven or undulating surface.

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.

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.

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.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration 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.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Kame. An irregular, short ridge or hill of stratified drift.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain (geology). A nearly level surface marking the floor of an extinct lake filled by well sorted, coarse textured to fine textured, stratified sediments.

Lamellae. Thin layers in the soil in which illuviated clay particles have accumulated. The layers generally form in sandy soils and are commonly irregular or discontinuous.

Landform. An individual feature of the earth's surface. Large features include plateaus and mountains; small features include hills, dunes, kames, and hillslopes.

Landscape. A collection or population of landforms.

Large stones (in map unit descriptions). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil. The content of rock fragments in the surface layer and the subsoil is more than 25 percent.

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.

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.

Low strength. The soil is not strong enough to support loads.

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.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

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.)

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.)

Nutrient loss (in map unit descriptions). The soil may lose nutrients, fertilizers and pesticides as a result of either surface water runoff or percolation through the soil.

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 mat. A zone of accumulation of organic material, such as leaves, twigs, and grasses, in various stages of decomposition. This zone lies above the mineral soil. It is often described in forest regions and is commonly called duff or forest litter.

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

Ortstein. A hardened mass or layer in the soil in which the cemented material consists of illuviated compounds of iron and aluminum and organic matter.

Outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Parent material. The unconsolidated organic and mineral material in which soil forms.

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.

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.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

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:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poor filtering capacity (in map unit descriptions). Effluent moves through the soil too rapidly for adequate filtration or treatment.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed 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

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

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.

Relief. The elevations or inequalities of a land surface, considered collectively.

Restrictive feature (in map unit descriptions). The soil has a layer that inhibits the movement of water and/or roots through the soil. Examples of restrictive features include bedrock, ortstein, and dense layers.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock fragments (in map unit descriptions). Equipment use and other uses are limited because of excess gravel and cobbles within 12 inches of the surface.

Root zone. The part of the soil that can be penetrated by plant roots.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandy textures (in map unit descriptions). Equipment use and other uses are limited because of the sandy surface layer.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seasonal wetness (in map unit descriptions). Equipment use and other uses are limited because the soil has a water table between depths of 6 and 40 inches during some part of the year.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Severe wetness (in map unit descriptions). Equipment use and other uses are limited because the soil has a water table at or near the surface during some part of the year.

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.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for complex slopes are as follows:

Level	0 to 2 percent
Nearly level	0 to 3 percent
Gently undulating	0 to 6 percent
Undulating	2 to 6 percent
Gently rolling	6 to 12 percent
Rolling	6 to 18 percent
Hilly	12 to 25 percent
Steep	18 to 45 percent
Very steep	45 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil rutting (in map unit descriptions). Ruts form easily during the spring and other wet periods.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

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).

Subsidence (in map unit descriptions). The settlement of organic soils after they are drained is more than 24 inches.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface boulders (in map unit descriptions). Equipment use and other uses are limited because of boulders on the 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.

Surface stones (in map unit descriptions). Equipment use and other uses are limited because of stones on the surface.

Terminal moraine. A belt of thick 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 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 till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

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.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth’s surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Houghton, Michigan)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	21.0	8.8	14.9	40	-16	0	4.14	2.80	5.41	13	67.5
February---	23.9	10.1	17.0	47	-14	1	2.29	1.20	3.29	7	33.6
March------	32.7	18.4	25.5	57	-8	8	2.45	1.16	3.53	6	24.0
April------	46.3	30.1	38.2	77	10	87	1.71	.97	2.43	4	7.7
May--------	61.7	41.4	51.6	87	26	368	2.49	1.42	3.56	5	1.1
June-------	70.3	50.0	60.2	91	35	605	2.84	1.51	4.12	6	.0
July-------	75.6	55.9	65.7	95	43	796	2.97	1.83	4.03	5	.0
August-----	73.3	55.5	64.4	91	42	757	2.75	1.52	3.97	5	.0
September--	63.0	47.0	55.0	85	30	450	3.23	2.00	4.36	7	.1
October----	51.3	37.3	44.3	75	22	176	2.56	1.59	3.37	6	3.9
November---	36.4	25.9	31.1	61	7	22	2.84	1.66	3.88	8	23.8
December---	25.4	14.6	20.0	44	-8	0	3.42	1.58	5.23	11	56.7
Yearly:											
Average---	48.4	32.9	40.7	---	---	---	---	---	---	---	---
Extreme---	102	-26	---	96	-18	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,270	33.68	27.72	39.25	83	218.5

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Houghton, Michigan)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 1	May 12	May 23
2 years in 10 later than--	Apr. 27	May 7	May 18
5 years in 10 later than--	Apr. 17	Apr. 26	May 9
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 15	Sept. 30	Sept. 19
2 years in 10 earlier than--	Oct. 20	Oct. 6	Sept. 24
5 years in 10 earlier than--	Nov. 1	Oct. 18	Oct. 4

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Houghton, Michigan)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	172	150	131
8 years in 10	180	158	137
5 years in 10	196	173	147
2 years in 10	212	189	158
1 year in 10	221	197	163

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
2	Lupton and Tawas soils, 0 to 1 percent slopes	9,938	4.2
3	Dawson and Loxley soils, 0 to 1 percent slopes	2,500	1.1
6	Skandia-Burt complex, 0 to 2 percent slopes	1,637	0.7
10	Cathro-Sabattis complex, 0 to 2 percent slopes, stony	2,225	0.9
13	Tawas-Deford complex, 0 to 4 percent slopes	7,172	3.0
15B	Dawson-Croswell complex, 0 to 8 percent slopes	1,240	0.5
20E	Rock outcrop, gently sloping to steep	98	*
21G	Rock outcrop-Arcadian complex, 40 to 90 percent slopes, extremely bouldery	793	0.3
39A	Betsy Bay-Burt-Deford complex, 0 to 3 percent slopes	1,667	0.7
47A	Zeba-Jacobsville complex, 0 to 3 percent slopes, stony	1,551	0.7
51C	Arcadian-Nipissing-Rock outcrop complex, dissected, 1 to 12 percent slopes, very stony	1,323	0.6
51E	Arcadian-Nipissing-Rock outcrop complex, dissected, 8 to 35 percent slopes, very stony	4,934	2.1
52C	Arcadian-Dishno-Rock outcrop complex, dissected, 1 to 12 percent slopes, very bouldery	585	0.2
52E	Arcadian-Dishno-Rock outcrop complex, dissected, 8 to 35 percent slopes, very bouldery	13,744	5.8
53E	Arcadian-Michigamme-Rock outcrop complex, 8 to 35 percent slopes, extremely bouldery	1,667	0.7
53F	Arcadian-Michigamme-Rock outcrop complex, 35 to 70 percent slopes, extremely bouldery	9,075	3.8
55B	Chocolay very cobbly fine sandy loam, 1 to 8 percent slopes, very flaggy	835	0.4
100B	Waiska cobbly loamy sand, 0 to 8 percent slopes	322	0.1
100D	Waiska cobbly loamy sand, 8 to 15 percent slopes	163	*
102C	Waiska-Garlic complex, dissected, 1 to 12 percent slopes, very bouldery	619	0.3
102E	Waiska-Garlic complex, dissected, 8 to 35 percent slopes, very bouldery	1,506	0.6
102F	Waiska-Garlic complex, dissected, 15 to 60 percent slopes, very bouldery	569	0.2
110B	Shelldrake-Croswell complex, 0 to 8 percent slopes	147	*
111B	Deer Park sand, 0 to 8 percent slopes	357	0.2
111D	Deer Park sand, 6 to 18 percent slopes	362	0.2
111E	Deer Park sand, 8 to 35 percent slopes	922	0.4
111F	Deer Park sand, 35 to 70 percent slopes	80	*
112C	Deer Park-Croswell complex, 1 to 12 percent slopes	443	0.2
113C	Rubicon-Croswell complex, 1 to 12 percent slopes	1,043	0.4
120B	Garlic fine sand, 0 to 8 percent slopes	1,244	0.5
120D	Garlic fine sand, 8 to 15 percent slopes	876	0.4
120E	Garlic fine sand, 15 to 35 percent slopes	430	0.2
125A	Croswell-Au Gres complex, 0 to 3 percent slopes	1,320	0.6
126B	Au Gres-Deford-Croswell complex, 0 to 6 percent slopes	3,486	1.5
127A	Au Gres-Kinross complex, 0 to 3 percent slopes	1,008	0.4
130C	Garlic-Alcona complex, dissected, 1 to 12 percent slopes	2,965	1.2
130E	Garlic-Alcona complex, dissected, 8 to 35 percent slopes	2,792	1.2
133C	Keweenaw-Garlic complex, 1 to 12 percent slopes	853	0.4
133E	Keweenaw-Garlic complex, 8 to 35 percent slopes	697	0.3
133F	Keweenaw-Garlic complex, 15 to 60 percent slopes	495	0.2
136B	Borgstrom-Ingalls complex, 0 to 6 percent slopes	2,123	0.9
142C	Wallace-Rubicon complex, 1 to 12 percent slopes	413	0.2
142F	Wallace-Rubicon complex, 12 to 50 percent slopes	770	0.3
155C	Montreal-Paavola-Waiska complex, dissected, 1 to 12 percent slopes, rocky, very bouldery	8,832	3.7
155E	Montreal-Paavola-Waiska complex, dissected, 8 to 35 percent slopes, rocky, very bouldery	17,974	7.6
158A	Arnheim-Sturgeon-Pelkie complex, 0 to 3 percent slopes	1,171	0.5
161F	Trimountain-Lac La Belle-Waiska complex, dissected, 15 to 60 percent slopes, rocky, very bouldery	1,947	0.8
162F	Trimountain-Lac La Belle-Michigamme complex, dissected, 15 to 60 percent slopes, very rocky, extremely bouldery	3,832	1.6
166B	Gratiot-Sabattis complex, 0 to 4 percent slopes, rocky, very bouldery	16,583	7.0
173C	Montreal-Paavola-Dishno complex, dissected, 1 to 12 percent slopes, very rocky, very bouldery	8,787	3.7
173E	Montreal-Paavola-Dishno complex, dissected, 8 to 35 percent slopes, very rocky, very bouldery	19,313	8.1
174B	Montreal-Dishno-Gratiot complex, 0 to 8 percent slopes, rocky, very bouldery	5,086	2.1
177A	Assinins sand, 0 to 4 percent slopes	1,664	0.7
183C	Munising-Abbaye-Yalmer complex, dissected, 1 to 12 percent slopes, stony	2,535	1.1
183E	Munising-Abbaye-Yalmer complex, dissected, 8 to 35 percent slopes, stony	2,901	1.2
184C	Munising-Yalmer complex, dissected, 1 to 12 percent slopes	5,241	2.2
184E	Munising-Yalmer complex, dissected, 8 to 35 percent slopes	2,336	1.0
185B	Munising-Skanee complex, dissected, 1 to 8 percent slopes	6,571	2.8

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
185C	Munising-Skanee complex, dissected, 4 to 18 percent slopes	10,567	4.5
187A	Skanee-Gay complex, 0 to 3 percent slopes	16,710	7.0
192B	Nipissing-Arcadian-Rock outcrop complex, 0 to 8 percent slopes, very stony	910	0.4
194B	Copper Harbor extremely gravelly sandy loam, 0 to 4 percent slopes, very stony	169	*
195B	Copper Harbor-Bete Grise complex, 0 to 4 percent slopes, stony	1,267	0.5
196B	Bete Grise-Tawas complex, 0 to 4 percent slopes, stony	701	0.3
301	Udorthents-Udipsamments, nearly level to very steep	103	*
302	Histosols and Aquents, ponded	3,834	1.6
303	Aquents and Dumps, stamp sand	495	0.2
310	Dumps, mine	223	*
311	Dumps, stamp sand	468	0.2
312	Pits, borrow	71	*
313	Dumps, sawdust	15	*
W	Water	10,158	4.3
	Total	237,453	100.0

* Less than 0.1 percent.

Table 5.--Woodland Management and Productivity

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for further explanation of ratings in this table)

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
2:								
Lupton	Slight	Poorly suited: Wetness	Severe: Wetness	High: Wetness	Balsam fir	46	86	---
					Black ash	---	---	
					Black spruce	20	29	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Tamarack	---	---	
					White spruce	---	---	
Tawas	Slight	Poorly suited: Wetness	Severe: Wetness	High: Wetness	Balsam fir	40	72	Eastern arborvitae, tamarack.
					Balsam poplar	---	---	
					Black ash	---	---	
					Eastern arborvitae	---	---	
					Eastern hemlock	---		
					Red maple	---	---	
3:								
Dawson	Slight	Unsuited: Wetness	Severe: Wetness	High: Wetness	Black spruce	15	29	---
					Tamarack	---	---	
Loxley	Slight	Unsuited: Wetness	Severe: Wetness	High: Wetness	Balsam fir	---	---	---
					Black spruce	15	29	
					Tamarack	---	---	
6:								
Skandia	Slight	Poorly suited: Wetness	Severe: Wetness	High: Wetness	Balsam fir	---	---	Eastern arborvitae, tamarack, white spruce.
					Black ash	---	---	
					Eastern arborvitae	30	43	
					Eastern hemlock	---	---	
					Tamarack	---	---	
Burt	Slight	Poorly suited: Wetness	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	45		Eastern arborvitae, white spruce.
					Black spruce	---		
					Eastern arborvitae	---		
					Eastern hemlock	---		
					Quaking aspen	---		
					Red maple	---		
10:								
Cathro	Slight	Poorly suited: Wetness	Severe: Wetness	High: Wetness	Balsam fir	40	72	Balsam fir, black ash, northern whitecedar, paper birch.
					Black spruce	15	29	
					Eastern arborvitae	15	29	
					Paper birch	---	---	
					Red maple	40	29	
					Tamarack	35	29	
					White spruce	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
10:								
Sabattis------	Slight	Poorly suited: Rock fragments	Severe: Wetness	High: Wetness	Balsam fir----------	48	86	Northern whitecedar.
					Black ash-----------	---	---	
					Black spruce--------	48	72	
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Tamarack------------	40	29	
					White spruce--------	41	72	
					Yellow birch--------	---	---	
13:								
Tawas---------	Slight	Poorly suited: Wetness	Severe: Wetness	High: Wetness	Balsam fir----------	40	72	Eastern arborvitae, tamarack.
					Balsam poplar-------	---	---	
					Black ash-----------	---	---	
					Eastern arborvitae--	---	---	
					Eastern hemlock-----	---		
					Red maple-----------	---	---	
Deford--------	Slight	Well suited	Severe: Wetness	High: Wetness	Balsam fir----------	---	---	Eastern white pine, tamarack, white spruce.
					Black ash-----------	---	---	
					Eastern arborvitae--	---	---	
					Quaking aspen-------	60	57	
					Red maple-----------	64	43	
					White spruce--------	---	---	
15B:								
Dawson--------	Slight	Unsuited: Wetness	Severe: Wetness	High: Wetness	Black spruce--------	15	29	---
					Tamarack------------	---	---	
Croswell------	Slight	Well suited	Moderate: Wetness	Moderate: Droughty	Bigtooth aspen------	69	86	Eastern white pine, red pine, white spruce.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	53	72	
					Northern red oak----	---	---	
					Paper birch---------	54	57	
					Quaking aspen-------	68	72	
					Red maple-----------	---	---	
					Red pine------------	55	86	
20E.								
Rock outcrop								
21G:								
Rock outcrop.								
Arcadian------	Very severe: Slope	Unsuited: Slope Rock fragments	Severe: Rooting depth	Low	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					White ash-----------	---	---	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
39A:								
Betsy Bay-----	Slight	Well suited	Moderate: Wetness	High: Wetness	Balsam fir----------	---	---	Norway spruce, eastern white pine, red pine, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	51	72	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	70	86	
					Red maple-----------	65	43	
					Yellow birch--------	---	---	
Burt----------	Slight	Poorly suited: Wetness	Severe: Rooting depth Wetness	High: Wetness	Balsam fir----------	45	---	Eastern arborvitae, white spruce.
					Black spruce--------	---	---	
					Eastern arborvitae--	---	---	
					Eastern hemlock-----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
Deford--------	Slight	Well suited	Severe: Wetness	High: Wetness	Balsam fir----------	---	---	Eastern white pine, tamarack, white spruce.
					Black ash-----------	---	---	
					Eastern arborvitae--	---	---	
					Quaking aspen-------	60	57	
					Red maple-----------	64	43	
					White spruce--------	---	---	
47A:								
Zeba----------	Slight	Well suited	Moderate: Wetness Rooting depth	High: Wetness	Balsam fir----------	---	---	Eastern white pine, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	55	29	
					Sugar maple---------	---	---	
					White spruce--------	---	---	
					Yellow birch--------	---	---	
Jacobsville---	Slight	Well suited	Severe: Wetness Rooting depth	High: Wetness	Balsam fir----------	---	---	---
					Eastern hemlock-----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	55	29	
					Yellow birch--------	---	---	
51C:								
Arcadian------	Slight	Poorly suited: Rock fragments	Severe: Rooting depth	Low	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					White ash-----------	---	---	
					Yellow birch--------	---	---	
Nipissing-----	Slight	Poorly suited: Rock fragments	Slight	Low	Balsam fir----------	35	57	---
					Northern whitecedar	---	---	
					Paper birch---------	50	43	
					Quaking aspen-------	---	---	
					White spruce--------	40	72	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Suitability for site preparation	Windthrow hazard	Potential for seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
51C:								
Rock outcrop.								
51E:								
Arcadian------	Moderate: Slope	Poorly suited: Slope Rock fragments	Severe: Rooting depth	Low	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					White ash-----------	---	---	
					Yellow birch--------	---	---	
Nipissing-----	Moderate: Slope	Poorly suited: Rock fragments Slope	Slight	Low	Balsam fir----------	35	57	---
					Northern whitecedar	---	---	
					Paper birch---------	50	43	
					Quaking aspen-------	---	---	
					White spruce--------	40	72	
Rock outcrop.								
52C:								
Arcadian------	Slight	Poorly suited: Rock fragments	Severe: Rooting depth	Low	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					White ash-----------	---	---	
					Yellow birch--------	---	---	
Dishno--------	Slight	Poorly suited: Wetness	Moderate: Wetness	High: Wetness	Balsam fir----------	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	60	43	
					Yellow birch--------	---	---	
Rock outcrop.								
52E:								
Arcadian------	Moderate: Slope	Poorly suited: Slope Rock fragments	Severe: Rooting depth	Low	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					White ash-----------	---	---	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
52E:								
Dishno	Slight	Poorly suited: Slope Wetness	Moderate: Wetness	High: Wetness	Balsam fir	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	60	43	
					Yellow birch	---	---	
Rock outcrop.								
53E:								
Arcadian	Moderate: Slope	Poorly suited: Slope Rock fragments	Severe: Rooting depth	Low	American basswood	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	63	43	
					White ash	---	---	
					Yellow birch	---	---	
Michigamme	Slight	Poorly suited: Slope Rock fragments	Slight	Low	Balsam fir	---	---	Eastern white pine, white spruce.
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Red maple	---	---	
					Sugar maple	60	43	
					White spruce	---	---	
					Yellow birch	60	43	
Rock outcrop.								
53F:								
Arcadian	Severe: Slope	Unsuited: Slope Rock fragments	Severe: Rooting depth	Low	American basswood	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	63	43	
					White ash	---	---	
					Yellow birch	---	---	
Michigamme	Slight	Unsuited: Slope Rock fragments	Slight	Low	Balsam fir	---	---	Eastern white pine, white spruce.
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Red maple	---	---	
					Sugar maple	60	43	
					White spruce	---	---	
					Yellow birch	60	43	
Rock outcrop.								

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
55B:								
Chocolay	Slight	Poorly suited: Rock fragments	Severe: Rooting depth Wetness	High: Wetness Droughty	Sugar maple	61	---	American basswood, balsam fir, eastern hemlock, red maple, sugar maple, yellow birch.
100B:								
Waiska	Slight	Poorly suited: Rock fragments	Slight	Moderate: Droughty	American basswood	---	---	Eastern white pine, red pine.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	71	86	
					Sugar maple	61	43	
					Yellow birch	---	---	
100D:								
Waiska	Slight	Poorly suited: Rock fragments	Slight	Moderate: Droughty	American basswood	---	---	Eastern white pine, red pine.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	71	86	
					Sugar maple	61	43	
					Yellow birch	---	---	
102C:								
Waiska	Slight	Poorly suited: Rock fragments	Slight	Moderate: Droughty	American basswood	---	---	Eastern white pine, red pine.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	71	86	
					Sugar maple	61	43	
					Yellow birch	---	---	
Garlic	Slight	Well suited	Slight	Moderate: Droughty	Eastern hemlock	---	---	Eastern white pine, red pine.
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	62	38	
					Yellow birch	---	---	
102E:								
Waiska	Slight	Poorly suited: Rock fragments Slope	Slight	Moderate: Droughty	American basswood	---	---	Eastern white pine, red pine.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	71	86	
					Sugar maple	61	43	
					Yellow birch	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
102E:								
Garlic--------	Slight	Poorly suited: Slope	Slight	Moderate: Droughty	Eastern hemlock-----	---	---	Eastern white pine, red pine.
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Red pine------------	---	---	
					Sugar maple---------	62	38	
					Yellow birch--------	---	---	
102F:								
Waiska--------	Slight	Unsuited: Slope Rock fragments	Slight	Moderate: Droughty	American basswood---	---	---	Eastern white pine, red pine.
					Balsam fir----------	---	---	
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	71	86	
					Sugar maple---------	61	43	
					Yellow birch--------	---	---	
Garlic--------	Slight	Unsuited: Slope	Slight	Moderate: Droughty	Eastern hemlock-----	---	---	Eastern white pine, red pine.
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Red pine------------	---	---	
					Sugar maple---------	62	38	
					Yellow birch--------	---	---	
110B:								
Shelldrake----	Slight	Well suited	Slight	Moderate: Droughty	Jack pine-----------	46	---	Eastern white pine, paper birch, red maple.
					Red pine------------	45	---	
Croswell------	Slight	Well suited	Moderate: Wetness	Moderate: Droughty	Bigtooth aspen------	69	86	Eastern white pine, red pine, white spruce.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	53	72	
					Northern red oak----	---	---	
					Paper birch---------	54	57	
					Quaking aspen-------	68	72	
					Red maple-----------	---	---	
					Red pine------------	55	86	
111B:								
Deer Park-----	Slight	Well suited	Slight	Low	American beech------	---	---	Jack pine, red pine.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	46	57	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red pine------------	45	64	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
111D:								
Deer Park-----	Slight	Well suited	Slight	Low	American beech------	---	---	Jack pine, red pine.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	46	57	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red pine------------	45	64	
111E:								
Deer Park-----	Slight	Poorly suited: Slope	Slight	Low	American beech------	---	---	Jack pine, red pine.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	46	57	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red pine------------	45	64	
111F:								
Deer Park-----	Slight	Unsuited: Slope	Slight	Low	American beech------	---	---	Jack pine, red pine.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	46	57	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red pine------------	45	64	
112C:								
Deer Park-----	Slight	Well suited	Slight	Low	American beech------	---	---	Jack pine, red pine.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	46	57	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red pine------------	45	64	
Croswell------	Slight	Well suited	Moderate: Wetness	Moderate: Droughty	Bigtooth aspen------	69	86	Eastern white pine, red pine, white spruce.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	53	72	
					Northern red oak----	---	---	
					Paper birch---------	54	57	
					Quaking aspen-------	68	72	
					Red maple-----------	---	---	
					Red pine------------	55	86	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
113C:								
Rubicon	Slight	Well suited	Slight	Moderate: Droughty	Bigtooth aspen	66	72	Eastern white pine, jack pine, red pine.
					Eastern white pine	45	72	
					Jack pine	53	86	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	60	57	
					Red maple	57	29	
					Red pine	53	72	
Croswell	Slight	Well suited	Moderate: Wetness	Moderate: Droughty	Bigtooth aspen	69	86	Eastern white pine, red pine, white spruce.
					Black cherry	---	---	
					Eastern white pine	---	---	
					Jack pine	53	72	
					Northern red oak	---	---	
					Paper birch	54	57	
					Quaking aspen	68	72	
					Red maple	---	---	
					Red pine	55	86	
120B:								
Garlic	Slight	Well suited	Slight	Moderate: Droughty	Eastern hemlock	---	---	Eastern white pine, red pine.
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	62	38	
					Yellow birch	---	---	
120D:								
Garlic	Slight	Well suited	Slight	Moderate: Droughty	Eastern hemlock	---	---	Eastern white pine, red pine.
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	62	38	
					Yellow birch	---	---	
120E:								
Garlic	Slight	Poorly suited: Slope	Slight	Moderate: Droughty	Eastern hemlock	---	---	Eastern white pine, red pine.
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	62	38	
					Yellow birch	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
125A:								
Croswell------	Slight	Well suited	Moderate: Wetness	Moderate: Droughty	Bigtooth aspen------	69	86	Eastern white pine, red pine, white spruce.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	53	72	
					Northern red oak----	---	---	
					Paper birch---------	54	57	
					Quaking aspen-------	68	72	
					Red maple-----------	---	---	
					Red pine------------	55	86	
Au Gres-------	Slight	Well suited	Moderate: Wetness	High: Wetness	Balsam fir----------	---	---	Norway spruce, eastern white pine, red pine, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	51	72	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	70	86	
					Red maple-----------	65	43	
					Yellow birch--------	---	---	
126B:								
Au Gres-------	Slight	Well suited	Moderate: Wetness	High: Wetness	Balsam fir----------	---	---	Norway spruce, eastern white pine, red pine, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	51	72	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	70	86	
					Red maple-----------	65	43	
					Yellow birch--------	---	---	
Deford--------	Slight	Well suited	Severe: Wetness	High: Wetness	Balsam fir----------	---	---	Eastern white pine, tamarack, white spruce.
					Black ash-----------	---	---	
					Eastern arborvitae--	---	---	
					Quaking aspen-------	60	57	
					Red maple-----------	64	43	
					White spruce--------	---	---	
Croswell------	Slight	Well suited	Moderate: Wetness	Moderate: Droughty	Bigtooth aspen------	69	86	Eastern white pine, red pine, white spruce.
					Black cherry--------	---	---	
					Eastern white pine--	---	---	
					Jack pine-----------	53	72	
					Northern red oak----	---	---	
					Paper birch---------	54	57	
					Quaking aspen-------	68	72	
					Red maple-----------	---	---	
					Red pine------------	55	86	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
127A:								
Au Gres	Slight	Well suited	Moderate: Wetness	High: Wetness	Balsam fir	---	---	Norway spruce, eastern white pine, red pine, white spruce.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Jack pine	51	72	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	70	86	
					Red maple	65	43	
					Yellow birch	---	---	
Kinross	Slight	Well suited	Severe: Wetness	High: Wetness	Balsam fir	---	---	---
					Black spruce	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	45	29	
					Red maple	---	---	
					Tamarack	---	---	
130C:								
Garlic	Slight	Well suited	Slight	Moderate: Droughty	Eastern hemlock	---	---	Eastern white pine, red pine.
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	62	38	
					Yellow birch	---	---	
Alcona	Slight	Well suited	Slight	Low	American basswood	---	---	Eastern white pine, red pine, white spruce.
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	61	43	
					Yellow birch	---	---	
130E:								
Garlic	Slight	Poorly suited: Slope	Slight	Moderate: Droughty	Eastern hemlock	---	---	Eastern white pine, red pine.
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	62	38	
					Yellow birch	---	---	
Alcona	Slight	Poorly suited: Slope	Slight	Low	American basswood	---	---	Eastern white pine, red pine, white spruce.
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	61	43	
					Yellow birch	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
133C:								
Keweenaw	Slight	Well suited	Slight	Low	Balsam fir	---	---	---
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	43	
					Yellow birch	---	---	
Garlic	Slight	Well suited	Slight	Moderate: Droughty	Eastern hemlock	---	---	Eastern white pine, red pine.
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	62	38	
					Yellow birch	---	---	
133E:								
Keweenaw	Slight	Poorly suited: Slope	Slight	Low	Balsam fir	---	---	---
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	43	
					Yellow birch	---	---	
Garlic	Slight	Poorly suited: Slope	Slight	Moderate: Droughty	Eastern hemlock	---	---	Eastern white pine, red pine.
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	62	38	
					Yellow birch	---	---	
133F:								
Keweenaw	Slight	Poorly suited: Slope	Slight	Low	Balsam fir	---	---	---
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	43	
					Yellow birch	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
133F:								
Garlic--------	Slight	Unsuited: Slope	Slight	Moderate: Droughty	Eastern hemlock-----	---	---	Eastern white pine, red pine.
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Red pine------------	---	---	
					Sugar maple---------	62	38	
					Yellow birch--------	---	---	
136B:								
Borgstrom-----	Slight	Well suited	Severe: Rooting depth Wetness	Moderate: Droughty	American beech------	---	---	Red pine, white spruce.
					Eastern hemlock-----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	65	43	
					Sugar maple---------	---	---	
					Yellow birch--------	---	---	
Ingalls-------	Slight	Well suited	Moderate: Wetness	High: Wetness	Balsam fir----------	---	---	Eastern white pine, northern whitecedar, white ash, white spruce.
					Eastern hemlock-----	---	---	
					Jack pine-----------	---	---	
					Northern pin oak----	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	60	57	
					Red maple-----------	---	---	
					Sugar maple---------	---	---	
					White ash-----------	---	---	
142C:								
Wallace-------	Slight	Well suited	Severe: Rooting depth	Low	Balsam fir----------	---	---	Red pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern white pine--	52	100	
					Paper birch---------	63	72	
					Quaking aspen-------	75	86	
					Red maple-----------	---	---	
					Red pine------------	59	100	
					Sugar maple---------	---	---	
Rubicon-------	Slight	Well suited	Slight	Moderate: Droughty	Bigtooth aspen------	66	72	Eastern white pine, jack pine, red pine.
					Eastern white pine--	45	72	
					Jack pine-----------	53	86	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	60	57	
					Red maple-----------	57	29	
					Red pine------------	53	72	
142F:								
Wallace-------	Severe: Slope	Poorly suited: Slope	Severe: Rooting depth	Low	Balsam fir----------	---	---	Red pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern white pine--	52	100	
					Paper birch---------	63	72	
					Quaking aspen-------	75	86	
					Red maple-----------	---	---	
					Red pine------------	59	100	
					Sugar maple---------	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
142F:								
Rubicon-------	Slight	Poorly suited: Slope	Slight	Moderate: Droughty	Bigtooth aspen------	66	72	Eastern white pine, jack pine, red pine.
					Eastern white pine--	45	72	
					Jack pine-----------	53	86	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	60	57	
					Red maple-----------	57	29	
					Red pine------------	53	72	
155C:								
Montreal------	Slight	Poorly suited: Rock fragments	Severe: Rooting depth Wetness	High: Wetness	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	
Paavola-------	Slight	Poorly suited: Rock fragments	Moderate: Wetness Rooting depth	High: Wetness Droughty	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	
Waiska--------	Slight	Poorly suited: Rock fragments	Slight	Moderate: Droughty	American basswood---	---	---	Eastern white pine, red pine.
					Balsam fir----------	---	---	
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	71	86	
					Sugar maple---------	61	43	
					Yellow birch--------	---	---	
155E:								
Montreal------	Slight	Poorly suited: Slope Rock fragments	Severe: Rooting depth Wetness	High: Wetness	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	
Paavola-------	Slight	Poorly suited: Slope Rock fragments	Moderate: Wetness Rooting depth	High: Wetness Droughty	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Suitability for site preparation	Windthrow hazard	Potential for seedling mortality	Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
	Management concerns				Potential productivity			
155E:								
Waiska--------	Slight	Poorly suited: Rock fragments Slope	Slight	Moderate: Droughty	American basswood---	---	---	Eastern white pine, red pine.
					Balsam fir----------	---	---	
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	71	86	
					Sugar maple---------	61	43	
					Yellow birch--------	---	---	
158A:								
Arnheim-------	Slight	Well suited	Severe: Wetness	High: Wetness	American elm--------	---	---	---
					Balsam fir----------	---	---	
					Black spruce--------	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Tamarack------------	---	---	
					White spruce--------	38	72	
Sturgeon------	Slight	Well suited	Moderate: Wetness	High: Wetness	American basswood---	---	---	Norway spruce, eastern white pine, white spruce.
					American elm--------	---	---	
					Balsam fir----------	---	---	
					Eastern hemlock-----	---	---	
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	65	43	
					Sugar maple---------	---	---	
					White spruce--------	---	---	
					Yellow birch--------	---	---	
Pelkie--------	Slight	Well suited	Moderate: Wetness	Moderate: Droughty	American basswood---	---	---	Norway spruce, red pine, white spruce.
					American elm--------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	65	43	
					White spruce--------	---	---	
					Yellow birch--------	---	---	
161F:								
Trimountain---	Slight	Unsuited: Slope Rock fragments	Severe: Rooting depth	Low	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	
Lac La Belle--	Slight	Unsuited: Slope Rock fragments	Slight	Moderate: Droughty	American basswood---	---	---	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
161F:								
Waiska--------	Slight	Unsuited: Slope Rock fragments	Slight	Moderate: Droughty	American basswood---	---	---	Eastern white pine, red pine.
					Balsam fir----------	---	---	
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	71	86	
					Sugar maple---------	61	43	
					Yellow birch--------	---	---	
162F:								
Trimountain---	Slight	Unsuited: Slope Rock fragments	Severe: Rooting depth	Low	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	
Lac La Belle--	Slight	Unsuited: Slope Rock fragments	Slight	Moderate: Droughty	American basswood---	---	---	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
Michigamme----	Slight	Unsuited: Slope Rock fragments	Slight	Low	Balsam fir----------	---	---	Eastern white pine, white spruce.
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	60	43	
					White spruce--------	---	---	
					Yellow birch--------	60	43	
166B:								
Gratiot-------	Slight	Poorly suited: Rock fragments	Severe: Rooting depth Wetness	High: Wetness	Balsam fir----------	58	114	Eastern white pine, white spruce.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Paper birch---------	53	57	
					Quaking aspen-------	---	---	
					Red maple-----------	60	43	
					White spruce--------	49	100	
					Yellow birch--------	---	---	
Sabattis------	Slight	Poorly suited: Rock fragments	Severe: Wetness	High: Wetness	Balsam fir----------	48	86	Northern whitecedar.
					Black ash-----------	---	---	
					Black spruce--------	48	72	
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Tamarack------------	40	29	
					White spruce--------	41	72	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
173C:								
Montreal------	Slight	Poorly suited: Rock fragments	Severe: Rooting depth Wetness	High: Wetness	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	
Paavola-------	Slight	Poorly suited: Rock fragments	Moderate: Wetness Rooting depth	High: Wetness Droughty	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	
Dishno--------	Slight	Poorly suited: Wetness	Moderate: Wetness	High: Wetness	Balsam fir----------	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	60	43	
					Yellow birch--------	---	---	
173E:								
Montreal------	Slight	Poorly suited: Slope Rock fragments	Severe: Rooting depth Wetness	High: Wetness	American basswood---	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	
Paavola-------	Slight	Poorly suited: Slope Rock fragments	Moderate: Wetness Rooting depth	High: Wetness Droughty	American basswood---	---	---	Eastern white pine, red pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern hophornbeam-	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	63	43	
					Yellow birch--------	---	---	
Dishno--------	Slight	Poorly suited: Slope Wetness	Moderate: Wetness	High: Wetness	Balsam fir----------	---	---	Eastern white pine, white spruce.
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	60	43	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
174B:								
Montreal	Slight	Poorly suited: Rock fragments	Severe: Rooting depth Wetness	High: Wetness	American basswood	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	63	43	
					Yellow birch	---	---	
Dishno	Slight	Poorly suited: Wetness	Moderate: Wetness	High: Wetness	Balsam fir	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	60	43	
					Yellow birch	---	---	
Gratiot	Slight	Poorly suited: Rock fragments	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	58	114	Eastern white pine, white spruce.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Paper birch	53	57	
					Quaking aspen	---	---	
					Red maple	60	43	
					White spruce	49	100	
					Yellow birch	---	---	
177A:								
Assinins	Slight	Well suited	Moderate: Wetness	High: Wetness	American basswood	---	---	Norway spruce, eastern white pine, white spruce.
					Balsam fir	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Quaking aspen	---	---	
					Red maple	65	43	
					Sugar maple	63	43	
					White spruce	---	---	
					Yellow birch	---	---	
183C:								
Munising	Slight	Well suited	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	---	---	American beech, ironwood, quaking aspen, sugar maple, yellow birch.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					White spruce	---	---	
					Yellow birch	---	---	
Abbaye	Slight	Well suited	Moderate: Wetness	Moderate: Wetness	Balsam fir	---	---	Red pine, white spruce.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	65	43	
					Sugar maple	62	43	
					Yellow birch	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
183C:								
Yalmer	Slight	Well suited	Moderate: Wetness Rooting depth	High: Wetness	American beech	---	---	Balsam fir, sugar maple, yellow birch.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					Yellow birch	---	---	
183E:								
Munising	Slight	Poorly suited: Slope	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	---	---	American beech, ironwood, quaking aspen, sugar maple, yellow birch.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					White spruce	---	---	
					Yellow birch	---	---	
Abbaye	Slight	Poorly suited: Slope	Moderate: Wetness	Moderate: Wetness	Balsam fir	---	---	Red pine, white spruce.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	65	43	
					Sugar maple	62	43	
					Yellow birch	---	---	
Yalmer	Slight	Poorly suited: Slope	Moderate: Wetness Rooting depth	High: Wetness	American beech	---	---	Balsam fir, sugar maple, yellow birch.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					Yellow birch	---	---	
184C:								
Munising	Slight	Well suited	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	---	---	American beech, ironwood, quaking aspen, sugar maple, yellow birch.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					White spruce	---	---	
					Yellow birch	---	---	
Yalmer	Slight	Well suited	Moderate: Wetness Rooting depth	High: Wetness	American beech	---	---	Balsam fir, sugar maple, yellow birch.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					Yellow birch	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
184E:								
Munising	Slight	Poorly suited: Slope	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	---	---	American beech, ironwood, quaking aspen, sugar maple, yellow birch.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					White spruce	---	---	
					Yellow birch	---	---	
Yalmer	Slight	Poorly suited: Slope	Moderate: Wetness Rooting depth	High: Wetness	American beech	---	---	Balsam fir, sugar maple, yellow birch.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					Yellow birch	---	---	
185B:								
Munising	Slight	Well suited	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	---	---	American beech, ironwood, quaking aspen, sugar maple, yellow birch.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					White spruce	---	---	
					Yellow birch	---	---	
Skanee	Slight	Well suited	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	60	43	
					Sugar maple	60	43	
					Yellow birch	---	---	
185C:								
Munising	Slight	Well suited	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	---	---	American beech, ironwood, quaking aspen, sugar maple, yellow birch.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	61	---	
					White spruce	---	---	
					Yellow birch	---	---	
Skanee	Slight	Well suited	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	60	43	
					Sugar maple	60	43	
					Yellow birch	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
187A:								
Skanee	Slight	Well suited	Severe: Rooting depth Wetness	High: Wetness	Balsam fir	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	60	43	
					Sugar maple	60	43	
					Yellow birch	---	---	
Gay	Slight	Well suited	Severe: Wetness	High: Wetness	Balsam fir	62	114	---
					Eastern hemlock	---	---	
					Northern whitecedar	---	---	
					Paper birch	---	---	
					Quaking aspen	73	86	
					Red maple	---	---	
					White spruce	---	---	
					Yellow birch	---	---	
192B:								
Nipissing	Slight	Poorly suited: Rock fragments	Slight	Low	Balsam fir	35	57	---
					Northern whitecedar	---	---	
					Paper birch	50	43	
					Quaking aspen	---	---	
					White spruce	40	72	
Arcadian	Slight	Poorly suited: Rock fragments	Severe: Rooting depth	Low	American basswood	---	---	Eastern white pine, white spruce.
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	63	43	
					White ash	---	---	
					Yellow birch	---	---	
Rock outcrop.								
194B:								
Copper Harbor	Slight	Poorly suited: Rock fragments	Moderate: Wetness	Low	American basswood	---	---	Eastern white pine, red pine.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	71	86	
					Sugar maple	61	43	
					Yellow birch	---	---	
195B:								
Copper Harbor	Slight	Poorly suited: Rock fragments	Moderate: Wetness	Low	American basswood	---	---	Eastern white pine, red pine.
					Balsam fir	---	---	
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Quaking aspen	71	86	
					Sugar maple	61	43	
					Yellow birch	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Erosion hazard	Management concerns: Suitability for site preparation	Management concerns: Windthrow hazard	Management concerns: Potential for seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
195B:								
Bete Grise----	Slight	Poorly suited: Rock fragments	Moderate: Wetness	High: Wetness	American basswood---	---	---	Eastern white pine, red pine.
					Balsam fir----------	---	---	
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	71	86	
					Sugar maple---------	61	43	
					Yellow birch--------	---	---	
196B:								
Bete Grise----	Slight	Poorly suited: Rock fragments	Moderate: Wetness	High: Wetness	American basswood---	---	---	Eastern white pine, red pine.
					Balsam fir----------	---	---	
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	71	86	
					Sugar maple---------	61	43	
					Yellow birch--------	---	---	
Tawas---------	Slight	Poorly suited: Wetness	Severe: Wetness	High: Wetness	Balsam fir----------	40	72	Eastern arborvitae, tamarack.
					Balsam poplar-------	---	---	
					Black ash-----------	---	---	
					Eastern arborvitae--	---	---	
					Eastern hemlock-----	---	---	
					Red maple-----------	---	---	
301. Udorthents-Udipsamments								
302. Histosols and Aquents								
303. Aquents and Dumps, stamp sand								
310. Dumps, mine								
311. Dumps, stamp sand								
312. Pits								
313. Dumps, sawdust								
W. Water								

*Volume is the yield in cubic feet per acre per year at the age of culmination of the mean annual increment for fully stocked stands.

Table 6.--Equipment Limitations on Woodland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for further explanation of ratings in this table)

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Ratings for most limiting season(s): Log landings	Ratings for most limiting season(s): Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Ratings for preferred operating seasons(s): Log landings	Ratings for preferred operating seasons(s): Logging areas and skid roads
2:							
Lupton	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Tawas	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
3:							
Dawson	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Loxley	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
6:							
Skandia	Poorly suited: Wetness Low strength Restrictive layer	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength Restrictive layer	Poorly suited: Low strength	Poorly suited: Low strength
Burt	Poorly suited: Restrictive layer Wetness	Poorly suited: Ponding Low strength Wetness	Poorly suited: Low strength Wetness	Summer, winter.	Poorly suited: Restrictive layer	Poorly suited: Low strength	Poorly suited: Low strength
10:							
Cathro	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s)			Preferred operating season(s)	Ratings for preferred operating seasons(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
10:							
Sabattis	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
13:							
Tawas	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Deford	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
15B:							
Dawson	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Croswell	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter.	Well suited	Well suited	Well suited
20E. Rock outcrop							
21G: Rock outcrop.							
Arcadian	Poorly suited: Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope	Year round	Poorly suited: Slope	Poorly suited: Slope Low strength	Poorly suited: Low strength Slope
39A:							
Betsy Bay	Poorly suited: Wetness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter.	Well suited	Well suited	Well suited

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s)			Preferred operating season(s)	Ratings for preferred operating seasons(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
39A:							
Burt	Poorly suited: Restrictive layer Wetness	Poorly suited: Ponding Low strength Wetness	Poorly suited: Low strength Wetness	Summer, winter.	Poorly suited: Restrictive layer	Poorly suited: Low strength	Poorly suited: Low strength
Deford	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
47A:							
Zeba	Poorly suited: Wetness Restrictive layer	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Moderately suited: Restrictive layer	Well suited	Well suited
Jacobsville	Poorly suited: Wetness Restrictive layer	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Moderately suited: Restrictive layer	Poorly suited: Low strength	Poorly suited: Low strength
51C:							
Arcadian	Poorly suited: Restrictive layer	Poorly suited: Low strength Slope	Poorly suited: Low strength	Year round	Poorly suited: Restrictive layer	Poorly suited: Low strength Slope	Poorly suited: Low strength
Nipissing	Moderately suited: Restrictive layer	Moderately suited: Slope	Well suited	Year round	Moderately suited: Restrictive layer	Moderately suited: Slope	Well suited
Rock outcrop.							
51E:							
Arcadian	Poorly suited: Restrictive layer Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope	Year round	Poorly suited: Restrictive layer Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope
Nipissing	Moderately suited: Restrictive layer Slope	Poorly suited: Slope	Moderately suited: Slope	Spring, fall, winter.	Moderately suited: Restrictive layer Slope	Poorly suited: Slope	Moderately suited: Slope
Rock outcrop.							

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Ratings for most limiting season(s): Log landings	Ratings for most limiting season(s): Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Ratings for preferred operating seasons(s): Log landings	Ratings for preferred operating seasons(s): Logging areas and skid roads
52C:							
Arcadian	Poorly suited: Restrictive layer	Poorly suited: Low strength Slope	Poorly suited: Low strength	Year round	Poorly suited: Restrictive layer	Poorly suited: Low strength Slope	Poorly suited: Low strength
Dishno	Moderately suited: Wetness	Moderately suited: Wetness Slope	Moderately suited: Wetness	Summer, fall, winter.	Well suited	Moderately suited: Slope	Well suited
Rock outcrop.							
52E:							
Arcadian	Poorly suited: Restrictive layer Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope	Year round	Poorly suited: Restrictive layer Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope
Dishno	Moderately suited: Wetness Slope Restrictive layer	Poorly suited: Slope Wetness	Moderately suited: Wetness Slope	Spring, fall, winter.	Moderately suited: Slope Restrictive layer	Poorly suited: Slope	Moderately suited: Slope
Rock outcrop.							
53E:							
Arcadian	Poorly suited: Restrictive layer Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope	Year round	Poorly suited: Restrictive layer Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope
Michigamme	Moderately suited: Restrictive layer Slope	Poorly suited: Slope Low strength	Moderately suited: Low strength Slope	Summer, fall, winter.	Moderately suited: Restrictive layer Slope	Poorly suited: Slope Low strength	Moderately suited: Low strength Slope
Rock outcrop.							
53F:							
Arcadian	Poorly suited: Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope	Year round	Poorly suited: Slope	Poorly suited: Slope Low strength	Poorly suited: Low strength Slope
Michigamme	Poorly suited: Slope Low strength	Poorly suited: Slope Low strength	Poorly suited: Slope Low strength	Summer, fall, winter.	Poorly suited: Slope Low strength	Poorly suited: Slope Low strength	Poorly suited: Slope Low strength
Rock outcrop.							

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Ratings for most limiting season(s): Log landings	Ratings for most limiting season(s): Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Ratings for preferred operating seasons(s): Log landings	Ratings for preferred operating seasons(s): Logging areas and skid roads
55B:							
Chocolay	Moderately suited: Restrictive layer	Well suited	Well suited	Year round	Moderately suited: Restrictive layer	Well suited	Well suited
100B:							
Waiska	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
100D:							
Waiska	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
102C:							
Waiska	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
Garlic	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
102E:							
Waiska	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Garlic	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
102F:							
Waiska	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Garlic	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Year round	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
110B:							
Shelldrake	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter.	Well suited	Well suited	Well suited
Croswell	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter.	Well suited	Well suited	Well suited
111B:							
Deer Park	Well suited	Well suited	Well suited	Spring, fall, winter.	Well suited	Well suited	Well suited
111D:							
Deer Park	Well suited	Moderately suited: Slope	Well suited	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Ratings for most limiting season(s): Log landings	Ratings for most limiting season(s): Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Ratings for preferred operating seasons(s): Log landings	Ratings for preferred operating seasons(s): Logging areas and skid roads
111E:							
Deer Park	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
111F:							
Deer Park	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
112C:							
Deer Park	Well suited	Moderately suited: Slope	Well suited	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
Croswell	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter.	Well suited	Well suited	Well suited
113C:							
Rubicon	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
Croswell	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter.	Well suited	Well suited	Well suited
120B:							
Garlic	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
120D:							
Garlic	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
120E:							
Garlic	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
125A:							
Croswell	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter.	Well suited	Well suited	Well suited
Au Gres	Poorly suited: Wetness	Poorly suited: Wetness Low strength Sandiness	Poorly suited: Low strength Wetness Sandiness	Summer, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Log landings	Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Log landings	Logging areas and skid roads
126B:							
Au Gres	Poorly suited: Wetness	Poorly suited: Wetness Low strength Sandiness	Poorly suited: Low strength Wetness Sandiness	Summer, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
Deford	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
Croswell	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter.	Well suited	Well suited	Well suited
127A:							
Au Gres	Poorly suited: Wetness	Poorly suited: Wetness Low strength Sandiness	Poorly suited: Low strength Wetness Sandiness	Summer, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
Kinross	Poorly suited: Wetness	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
130C:							
Garlic	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
Alcona	Well suited	Moderately suited: Low strength Slope	Moderately suited: Low strength	Summer, fall, winter.	Well suited	Moderately suited: Low strength Slope	Moderately suited: Low strength
130E:							
Garlic	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Alcona	Moderately suited: Slope	Poorly suited: Slope Low strength	Moderately suited: Low strength Slope	Summer, fall, winter.	Moderately suited: Slope	Poorly suited: Slope Low strength	Moderately suited: Low strength Slope

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Log landings	Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Log landings	Logging areas and skid roads
133C:							
Keweenaw	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
Garlic	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
133E:							
Keweenaw	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Garlic	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
133F:							
Keweenaw	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Garlic	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Year round	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
136B:							
Borgstrom	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
Ingalls	Poorly suited: Wetness Sandiness Sandiness	Poorly suited: Wetness Low strength Sandiness	Poorly suited: Low strength Wetness Sandiness	Summer, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
142C:							
Wallace	Well suited	Poorly suited: Low strength Slope	Poorly suited: Low strength	Spring, fall, winter.	Well suited	Poorly suited: Low strength Slope	Poorly suited: Low strength
Rubicon	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter.	Well suited	Moderately suited: Slope	Well suited
142F:							
Wallace	Moderately suited: Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Low strength Slope	Poorly suited: Low strength Slope

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Log landings	Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Log landings	Logging areas and skid roads
142F:							
Rubicon	Moderately suited: Slope	Poorly suited: Slope Sandiness	Moderately suited: Slope Sandiness	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
155C:							
Montreal	Well suited	Moderately suited: Slope	Well suited	Summer, winter.	Well suited	Moderately suited: Slope	Well suited
Paavola	Moderately suited: Restrictive layer	Moderately suited: Slope	Well suited	Summer, winter.	Moderately suited: Restrictive layer	Moderately suited: Slope	Well suited
Waiska	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
155E:							
Montreal	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Summer, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Paavola	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Summer, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Waiska	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Spring, fall, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
158A:							
Arnheim	Poorly suited: Wetness Flooding	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness Low strength	Summer, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
Sturgeon	Poorly suited: Wetness Flooding Low strength	Poorly suited: Wetness Flooding Low strength	Poorly suited: Wetness Low strength	---	Moderately suited: Low strength	Moderately suited: Low strength	Moderately suited: Low strength
Pelkie	Moderately suited: Flooding	Moderately suited: Flooding	Well suited	---	Well suited	Well suited	Well suited
161F:							
Trimountain	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Year round	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s)			Preferred operating season(s)	Ratings for preferred operating seasons(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
161F:							
Lac La Belle-----	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Waiska-----------	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
162F:							
Trimountain------	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Year round	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Lac La Belle-----	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Spring, fall, winter.	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Michigamme-------	Poorly suited: Slope Low strength	Poorly suited: Slope Low strength	Poorly suited: Slope Low strength	Summer, fall, winter.	Poorly suited: Slope Low strength	Poorly suited: Slope Low strength	Poorly suited: Slope Low strength
166B:							
Gratiot----------	Poorly suited: Wetness	Poorly suited: Wetness Low strength	Poorly suited: Wetness Low strength	Summer, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
Sabattis---------	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
173C:							
Montreal---------	Well suited	Moderately suited: Slope	Well suited	Summer, winter.	Well suited	Moderately suited: Slope	Well suited
Paavola----------	Well suited	Moderately suited: Slope	Well suited	Summer, winter.	Well suited	Moderately suited: Slope	Well suited
Dishno-----------	Moderately suited: Wetness	Moderately suited: Wetness Slope	Moderately suited: Wetness	Summer, fall, winter.	Well suited	Moderately suited: Slope	Well suited
173E:							
Montreal---------	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Summer, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Log landings	Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Log landings	Logging areas and skid roads
173E:							
Paavola	Poorly suited: Restrictive layer Slope	Poorly suited: Slope	Moderately suited: Slope	Summer, winter.	Poorly suited: Restrictive layer Slope	Poorly suited: Slope	Moderately suited: Slope
Dishno	Moderately suited: Wetness Slope Restrictive layer	Poorly suited: Slope Wetness	Moderately suited: Wetness Slope	Spring, fall, winter.	Moderately suited: Slope Restrictive layer	Poorly suited: Slope	Moderately suited: Slope
174B:							
Montreal	Well suited	Moderately suited: Slope	Well suited	Summer, winter.	Well suited	Moderately suited: Slope	Well suited
Dishno	Moderately suited: Wetness	Moderately suited: Wetness Slope	Moderately suited: Wetness	Summer, fall, winter.	Well suited	Moderately suited: Slope	Well suited
Gratiot	Poorly suited: Wetness	Poorly suited: Wetness Low strength	Poorly suited: Wetness Low strength	Summer, winter.	Well suited	Moderately suited: Low strength	Moderately suited: Low strength
177A:							
Assinins	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
183C:							
Munising	Well suited	Moderately suited: Slope	Well suited	Summer, winter.	Well suited	Moderately suited: Slope	Well suited
Abbaye	Moderately suited: Restrictive layer	Moderately suited: Slope	Well suited	Year round	Moderately suited: Restrictive layer	Moderately suited: Slope	Well suited
Yalmer	Well suited	Moderately suited: Slope	Well suited	Summer, winter.	Well suited	Moderately suited: Slope	Well suited
183E:							
Munising	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Summer, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Abbaye	Moderately suited: Restrictive layer Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Restrictive layer Slope	Poorly suited: Slope	Moderately suited: Slope

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Ratings for most limiting season(s): Log landings	Ratings for most limiting season(s): Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Ratings for preferred operating seasons(s): Log landings	Ratings for preferred operating seasons(s): Logging areas and skid roads
183E:							
Yalmer	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Summer, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
184C:							
Munising	Well suited	Moderately suited: Slope	Well suited	Summer, winter.	Well suited	Moderately suited: Slope	Well suited
Yalmer	Well suited	Moderately suited: Slope	Well suited	Summer, winter.	Well suited	Moderately suited: Slope	Well suited
184E:							
Munising	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Summer, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Yalmer	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Summer, winter.	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
185B:							
Munising	Well suited	Well suited	Well suited	Summer, winter.	Well suited	Well suited	Well suited
Skanee	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
185C:							
Munising	Well suited	Moderately suited: Slope	Well suited	Summer, winter.	Well suited	Moderately suited: Slope	Well suited
Skanee	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
187A:							
Skanee	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Gay	Poorly suited: Wetness	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Summer, winter.	Well suited	Poorly suited: Low strength	Poorly suited: Low strength
192B:							
Nipissing	Moderately suited: Restrictive layer	Well suited	Well suited	Year round	Moderately suited: Restrictive layer	Well suited	Well suited

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s): Haul roads	Ratings for most limiting season(s): Log landings	Ratings for most limiting season(s): Logging areas and skid roads	Preferred operating season(s)	Ratings for preferred operating seasons(s): Haul roads	Ratings for preferred operating seasons(s): Log landings	Ratings for preferred operating seasons(s): Logging areas and skid roads
192B:							
Arcadian	Poorly suited: Restrictive layer	Poorly suited: Low strength	Poorly suited: Low strength	Year round	Poorly suited: Restrictive layer	Poorly suited: Low strength	Poorly suited: Low strength
Rock outcrop.							
194B:							
Copper Harbor	Well suited	Well suited	Well suited	Spring, fall, winter.	Well suited	Well suited	Well suited
195B:							
Copper Harbor	Well suited	Well suited	Well suited	Spring, fall, winter.	Well suited	Well suited	Well suited
Bete Grise	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
196B:							
Bete Grise	Poorly suited: Wetness	Poorly suited: Wetness	Poorly suited: Wetness	Summer, winter.	Well suited	Well suited	Well suited
Tawas	Poorly suited: Wetness Low strength	Poorly suited: Ponding Wetness Low strength	Poorly suited: Low strength Wetness	Winter	Poorly suited: Low strength	Poorly suited: Low strength	Poorly suited: Low strength
301. Udorthents-Udipsamments							
302. Histosols and Aquents							
303. Aquents and Dumps, stamp sand							
310. Dumps, mine							
311. Dumps, stamp sand							
312. Pits							

Table 6.--Equipment Limitations on Woodland--Continued

Map symbol and soil name	Ratings for most limiting season(s)			Preferred operating season(s)	Ratings for preferred operating seasons(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
313. Dumps, sawdust							
W. Water							

Table 7.--Plant Communities on Selected Soils

(Absence of an entry indicates that information was not available)

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
2:				
Lupton	Balsam fir	ABBA	Speckled alder	ALINR
	Black ash	FRNI	Pennsylvania sedge	CAPE6
	Black spruce	PIMA	Willow	SALIX
	Northern whitecedar	THOC2-1	Northern whitecedar	THOC2-1
	Paper birch	BEPA	American elm	ULAM
	Quaking aspen	POTR5		
	Red maple	ACRU		
	Tamarack	LALA		
	White spruce	PIGL		
Tawas	Balsam fir	ABBA	Purple pitcherplant	SAPU4
	Balsam poplar	POBA2	Northern maidenhair	ADPE
	Black ash	FRNI	Speckled alder	ALINR
	Eastern arborvitae	THOC2	Bluejoint	CACA4
	Eastern hemlock	TSCA	Sedge	CAREX
	Red maple	ACRU	Eastern teaberry	GAPR2
			Tamarack	LALA
			Balsam poplar	POBA2
			Quaking aspen	POTR5
			Brackenfern	PTERI
			American elm	ULAM
			Northern whitecedar	THOC2-1
3:				
Dawson	Black spruce	PIMA	Chamaedaphne	CHAMA5
	Tamarack	LALA	Sedge	CAREX
			Bog Labradortea	LEGR
Loxley	Balsam fir	ABBA	Chamaedaphne	CHAMA5
	Black spruce	PIMA	Eastern teaberry	GAPR2
	Tamarack	LALA	Vaccinium	VACCI
6:				
Skandia	Balsam fir	ABBA	American elm	ULAM
	Black ash	FRNI	Balsam fir	ABBA
	Eastern arborvitae	THOC2	Speckled alder	ALRU3
	Eastern hemlock	TSCA	Sedge	CAREX
	Tamarack	LALA	Bunchberry dogwood	COCA13
			Idaho goldthread	COOC
			Northern whitecedar	THOC2
			American starflower	TRBO2
Burt	Balsam fir	ABBA	Sedge	CAREX
	Black spruce	PIMA	Northern dewberry	RUFL
	Eastern arborvitae	THOC2	Woodsorrel	OXALI
	Eastern hemlock	TSCA	Bunchberry dogwood	COCA13
	Quaking aspen	POTRT	Goldthread	COPTI
	Red maple	ACRU	Speckled alder	ALINR
			Horsetail	EQUIS
			Sphagnum moss	SPHAG*
			Canada mayflower	MACA4

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
10:				
Cathro	Balsam fir	ABBA	Rattlesnake fern	BOVI
	Black spruce	PIMA	Northern dewberry	RUFL
	Eastern arborvitae	THOC2	Common ladyfern	ATFI
	Paper birch	BEPA	Sedge	CAREX
	Red maple	ACRU	American starflower	TRBO2
	Tamarack	LALA	Naked miterwort	MINU3
	White spruce	PIGL	Sphagnum moss	SPHAG*
			Woodsorrel	OXALI
			Goldthread	COPTI
			Bedstraw	GALIU
			Spinulose woodfern	DRCA11
Sabattis	Balsam fir	ABBA	Idaho goldthread	COOC
	Black ash	FRNI	Northern whitecedar	THOC2-1
	Black spruce	PIMA	American starflower	TRBO2
	Northern whitecedar	THOC2-1	Speckled alder	ALINR
	Quaking aspen	POTR5	Sedge	CAREX
	Red maple	ACRU	Eastern hemlock	TSCA
	Tamarack	LALA	American elm	ULAM
	White spruce	PIGL	Balsam fir	ABBA
	Yellow birch	BEAL2	Bunchberry dogwood	COCA13
13:				
Tawas	Balsam fir	ABBA	Speckled alder	ALINR
	Balsam poplar	POBA2	Eastern teaberry	GAPR2
	Black ash	FRNI	American elm	ULAM
	Eastern arborvitae	THOC2	Purple pitcherplant	SAPU4
	Eastern hemlock	TSCA	Brackenfern	PTERI
	Red maple	ACRU	Quaking aspen	POTR5
			Balsam poplar	POBA2
			Tamarack	LALA
			Sedge	CAREX
			Bluejoint	CACA4
			Northern maidenhair	ADPE
			Northern whitecedar	THOC2-1
Deford	Balsam fir	ABBA	Bunchberry dogwood	COCA13
	Black ash	FRNI	Red maple	ACRU
	Eastern arborvitae	THOC2	Sedge	CAREX
	Quaking aspen	POTRT	Sphagnum moss	SPHAG*
	Red maple	ACRU	Northern whitecedar	THOC2-1
	White spruce	PIGL		
15B:				
Dawson	Black spruce	PIMA	Chamaedaphne	CHAMA5
	Tamarack	LALA	Bog Labradortea	LEGR
			Sedge	CAREX
Croswell	Bigtooth aspen	POGR4	Wintergreen	GAPR2
	Black cherry	PRSE2	Blueberry	VACCI
	Eastern white pine	PIST	Starflower	TRIEN
	Jack pine	PIBA2	Thimbleberry	RUPA
	Northern red oak	QURU	Brackenfern	PTERI
	Paper birch	BEPA	Pin cherry	PRPE2
	Quaking aspen	POTRT	Northern twinflower	LIBO3
	Red maple	ACRU	Trailing arbutus	EPRE2
	Red pine	PIRE	Swordfern	DRSE*

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
21G:				
Rock outcrop.				
Arcadian	American basswood	TIAM	Spinulose woodfern	DRCA11
	Eastern hemlock	TSCA	Wild sarsaparilla	ARNU2
	Eastern hophornbeam	OSVI	Clayton's sweetroot	OSCL
	Northern red oak	QURU	American starflower	TRBO2
	Quaking aspen	POTR5	Sambucus racemosa	SARAR3
	Red maple	ACRU	Var. racemosa	
	Sugar maple	ACSA3	Violet	VIOLA
	White ash	FRAM2	Canada beadruby	MACA4
	Yellow birch	BEAL2	Claspleaf twistedstalk	STAM2
			Sugar maple	ACSA3
39A:				
Betsy Bay	Balsam fir	ABBA	Vaccinium	VACCI
	Bigtooth aspen	POGR4	Blackberry	RUBUS
	Eastern hemlock	TSCA	Eastern hemlock	TSCA
	Eastern white pine	PIST	American hazelnut	COAM3
	Jack pine	PIBA2	Common ninebark	PHOP
	Northern whitecedar	THOC2-1		
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red maple	ACRU		
	Yellow birch	BEAL2		
Burt	Balsam fir	ABBA	Woodsorrel	OXALI
	Black spruce	PIMA	Northern dewberry	RUFL
	Eastern arborvitae	THOC2	Sphagnum moss	SPHAG*
	Eastern hemlock	TSCA	Horsetail	EQUIS
	Quaking aspen	POTRT	Speckled alder	ALINR
	Red maple	ACRU	Goldthread	COPTI
			Bunchberry dogwood	COCA13
			Sedge	CAREX
			Canada mayflower	MACA4
Deford	Balsam fir	ABBA	Red maple	ACRU
	Black ash	FRNI	Sedge	CAREX
	Eastern arborvitae	THOC2	Bunchberry dogwood	COCA13
	Quaking aspen	POTRT	Sphagnum moss	SPHAG*
	Red maple	ACRU	Northern whitecedar	THOC2
	White spruce	PIGL		
47A:				
Zeba	Balsam fir	ABBA	Sedge	CAREX
	Bigtooth aspen	POGR4	Threeleaf goldthread	COTR2
	Eastern hemlock	TSCA	Yellow bluebeadlily	CLBO3
	Paper birch	BEPA	Spinulose woodfern	DRCA11
	Quaking aspen	POTR5	Bunchberry dogwood	COCA13
	Red maple	ACRU	Yellow birch	BEAL2
	Sugar maple	ACSA3	Canada beadruby	MACA4
	White spruce	PIGL	White baneberry	ACAL*
	Yellow birch	BEAL2	Wild sarsaparilla	ARNU2
			Shining clubmoss	HULU2
			Mountain woodsorrel	OXMO
			American starflower	TRBO2
			Red maple	ACRU
			Balsam fir	ABBA

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
47A:				
Jacobsville	Balsam fir	ABBA	Sphagnum moss	SPHAG*
	Eastern hemlock	TSCA	Wild sarsaparilla	ARNU2
	Quaking aspen	POTR5	Cinnamon fern	OSCI
	Red maple	ACRU	Sedge	CAREX
	Yellow birch	BEAL2	Streptopus Lanceolatus var. Roseus	STLAR
			Red maple	ACRU
			Northern whitecedar	THOC2-1
			Common ladyfern	ATFI
			Balsam fir	ABBA
51C:				
Arcadian	American basswood	TIAM	Sambucus racemosa Var. racemosa	SARAR3
	Eastern hemlock	TSCA		
	Eastern hophornbeam	OSVI	Spinulose woodfern	DRCA11
	Northern red oak	QURU	Wild sarsaparilla	ARNU2
	Quaking aspen	POTR5	Clayton's sweetroot	OSCL
	Red maple	ACRU	American starflower	TRBO2
	Sugar maple	ACSA3	Violet	VIOLA
	White ash	FRAM2	Canada beadruby	MACA4
	Yellow birch	BEAL2	Claspleaf twistedstalk	STAM2
			Sugar maple	ACSA3
Nipissing	Balsam fir	ABBA	Mapleleaf viburnum	VIAC
	Northern whitecedar	THOC2-1	Thimbleberry	RUPA
	Paper birch	BEPA	Wild sarsaparilla	ARNU2
	Quaking aspen	POTR5	Bigleaf aster	ASMA2
	White spruce	PIGL		
Rock outcrop.				
51E:				
Arcadian	American basswood	TIAM	Spinulose woodfern	DRCA11
	Eastern hemlock	TSCA	Wild sarsaparilla	ARNU2
	Eastern hophornbeam	OSVI	Clayton's sweetroot	OSCL
	Northern red oak	QURU	American starflower	TRBO2
	Quaking aspen	POTR5	Sambucus racemosa Var. racemosa	SARAR3
	Red maple	ACRU		
	Sugar maple	ACSA3	Violet	VIOLA
	White ash	FRAM2	Canada beadruby	MACA4
	Yellow birch	BEAL2	Claspleaf twistedstalk	STAM2
			Sugar maple	ACSA3
Nipissing	Balsam fir	ABBA	Bigleaf aster	ASMA2
	Northern whitecedar	THOC2-1	Wild sarsaparilla	ARNU2
	Paper birch	BEPA	Mapleleaf viburnum	VIAC
	Quaking aspen	POTR5	Thimbleberry	RUPA
	White spruce	PIGL		
Rock outcrop.				

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
52C:				
Arcadian	American basswood	TIAM	Sugar maple	ACSA3
	Eastern hemlock	TSCA	Claspleaf twistedstalk	STAM2
	Eastern hophornbeam	OSVI		
	Northern red oak	QURU	Canada beadruby	MACA4
	Quaking aspen	POTR5	Violet	VIOLA
	Red maple	ACRU	American starflower	TRBO2
	Sugar maple	ACSA3	Clayton's sweetroot	OSCL
	White ash	FRAM2	Wild sarsaparilla	ARNU2
	Yellow birch	BEAL2	Spinulose woodfern	DRCA11
			Sambucus racemosa	SARAR3
			Var. racemosa	
Dishno	Balsam fir	ABBA	Balsam fir	ABBA
	Eastern hemlock	TSCA	Red maple	ACRU
	Eastern white pine	PIST	Northern red oak	QURU
	Quaking aspen	POTRT	Wild sarsaparilla	ARNU2
	Red maple	ACRU	Violet	VIOLA
	Sugar maple	ACSA3	Brackenfern	PTAQ
	Yellow birch	BEAL2	Yellow beadlily	CLBO3
			American fly	LOCA7
			Honeysuckle twistedstalk	STREP3
			Spinulose shield fern	DRSP4
			Sugar maple	ACSA3
			Bedstraw	GALIU
			Thimbleberry	RUPA
			Large leaved aster	ASMA2
			Yellow birch	BEAL2
			Northern whitecedar	THOC2-1
Rock outcrop.				
52E:				
Arcadian	American basswood	TIAM	Canada beadruby	MACA4
	Eastern hemlock	TSCA	Claspleaf twistedstalk	STAM2
	Eastern hophornbeam	OSVI		
	Northern red oak	QURU	Sugar maple	ACSA3
	Quaking aspen	POTR5	Wild sarsaparilla	ARNU2
	Red maple	ACRU	Violet	VIOLA
	Sugar maple	ACSA3	Sambucus racemosa	SARAR3
	White ash	FRAM2	Var. racemosa	
	Yellow birch	BEAL2	American starflower	TRBO2
			Spinulose woodfern	DRCA11
			Clayton's sweetroot	OSCL

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
52E:				
Dishno------------------	Balsam fir	ABBA	Bedstraw	GALIU
	Eastern hemlock	TSCA	Yellow beadlily	CLBO3
	Eastern white pine	PIST	Brackenfern	PTAQ
	Quaking aspen	POTRT	Spinulose shield fern	DRSP4
	Red maple	ACRU		
	Sugar maple	ACSA3	Violet	VIOLA
	Yellow birch	BEAL2	Northern red oak	QURU
			Large leaved aster	ASMA2
			Sugar maple	ACSA3
			Balsam fir	ABBA
			Twistedstalk	STREP3
			Northern whitecedar	THOC2
			Yellow birch	BEAL2
			Red maple	ACRU
			Wild sarsaparilla	ARNU2
			American fly Honeysuckle	LOCA7
Rock outcrop.				
53E:				
Arcadian----------------	American basswood	TIAM	Claspleaf twistedstalk	STAM2
	Eastern hemlock	TSCA		
	Eastern hophornbeam	OSVI	Violet	VIOLA
	Northern red oak	QURU	Sugar maple	ACSA3
	Quaking aspen	POTR5	Wild sarsaparilla	ARNU2
	Red maple	ACRU	Sambucus racemosa Var. racemosa	SARAR3
	Sugar maple	ACSA3		
	White ash	FRAM2	American starflower	TRBO2
	Yellow birch	BEAL2	Clayton's sweetroot	OSCL
			Canada beadruby	MACA4
			Spinulose woodfern	DRCA11
Michigamme--------------	Balsam fir	ABBA	Canada beadruby	MACA4
	Bigtooth aspen	POGR4	Sugar maple	ACSA3
	Black cherry	PRSE2	Sedge	CAREX
	Eastern hemlock	TSCA	Yellow bluebeadlily	CLBO3
	Red maple	ACRU	Spinulose woodfern	DRCA11
	Sugar maple	ACSA3	American fly honeysuckle	LOCA7
	White spruce	PIGL		
	Yellow birch	BEAL2	Shining clubmoss	HULU2
			Hairy Solomon's seal	POPU4
			Yellow birch	BEAL2
			Sambucus racemosa Var. racemosa	SARAR3
			Balsam fir	ABBA
Rock outcrop.				
53F:				
Arcadian----------------	American basswood	TIAM	Sugar maple	ACSA3
	Eastern hemlock	TSCA	Claspleaf twistedstalk	STAM2
	Eastern hophornbeam	OSVI		
	Northern red oak	QURU	Violet	VIOLA
	Quaking aspen	POTR5	Sambucus racemosa Var. racemosa	SARAR3
	Red maple	ACRU		
	Sugar maple	ACSA3	Canada beadruby	MACA4
	White ash	FRAM2	Spinulose woodfern	DRCA11
	Yellow birch	BEAL2	Wild sarsaparilla	ARNU2
			Clayton's sweetroot	OSCL
			American starflower	TRBO2

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
53F:				
Michigamme--------------	Balsam fir	ABBA	Sedge	CAREX
	Bigtooth aspen	POGR4	Yellow bluebeadlily	CLBO3
	Black cherry	PRSE2	Spinulose woodfern	DRCA11
	Eastern hemlock	TSCA	American fly honeysuckle	LOCA7
	Red maple	ACRU		
	Sugar maple	ACSA3	Shining clubmoss	HULU2
	White spruce	PIGL	Hairy Solomon's seal	POPU4
	Yellow birch	BEAL2	Yellow birch	BEAL2
			Balsam fir	ABBA
			Sambucus racemosa Var. racemosa	SARAR3
			Sugar maple	ACSA3
			Canada beadruby	MACA4
Rock outcrop.				
55B:				
Chocolay----------------	Sugar maple	ACSA3	Sedge	CAREX
			Shining clubmoss	HULU2
			Ground pine	LYOB
			Oakfern	GYDR
			Spinulose shield fern	DRSP4
			Sugar maple	ACSA3
			Yellow beadlily	CLBO3
			Canada mayflower	MACA4
			Twistedstalk	STAM2
			Hairy Solomon's seal	POPU4
			Starflower	TRBO2
100B:				
Waiska------------------	American basswood	TIAM	Starflower	TRBO2
	Balsam fir	ABBA	Large leaved aster	ASMA2
	Eastern hemlock	TSCA	Wild sarsaparilla	ARNU2
	Paper birch	BEPA	Brackenfern	PTAQ
	Quaking aspen	POTRT	Ground pine	LYOB
	Sugar maple	ACSA3	Thimbleberry	RUPA
	Yellow birch	BEAL2	Clubmoss	LYCOP6
			Yellow beadlily	CLBO3
			Violet	VIOLA
			Twistedstalk	STREP3
			Sugar maple	ACSA3
100D:				
Waiska------------------	American basswood	TIAM	Yellow beadlily	CLBO3
	Balsam fir	ABBA	Twistedstalk	STREP3
	Eastern hemlock	TSCA	Violet	VIOLA
	Paper birch	BEPA	Thimbleberry	RUPA
	Quaking aspen	POTRT	Clubmoss	LYCOP6
	Sugar maple	ACSA3	Starflower	TRBO2
	Yellow birch	BEAL2	Sugar maple	ACSA3
			Ground pine	LYOB
			Brackenfern	PTAQ
			Wild sarsaparilla	ARNU2
			Large leaved aster	ASMA2

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
102C:				
Waiska	American basswood	TIAM	Sugar maple	ACSA3
	Balsam fir	ABBA	Violet	VIOLA
	Eastern hemlock	TSCA	Thimbleberry	RUPA
	Paper birch	BEPA	Ground pine	LYOB
	Quaking aspen	POTRT	Twistedstalk	STREP3
	Sugar maple	ACSA3	Yellow beadlily	CLBO3
	Yellow birch	BEAL2	Clubmoss	LYCOP6
			Starflower	TRBO2
			Large leaved aster	ASMA2
			Wild sarsaparilla	ARNU2
			Brackenfern	PTAQ
Garlic	Eastern hemlock	TSCA	Spinulose woodfern	DRCA11
	Eastern white pine	PIST	Wild sarsaparilla	ARNU2
	Paper birch	BEPA	Sugar maple	ACSA3
	Quaking aspen	POTRT	Shining clubmoss	HULU2
	Red maple	ACRU	Wintergreen	GAPR2
	Red pine	PIRE	Twistedstalk	STAM2
	Sugar maple	ACSA3	Bunchberry dogwood	COCA13
	Yellow birch	BEAL2	Yellow beadlily	CLBO3
			Ground pine	LYOB
			American starflower	TRBO2
			Canada mayflower	MACA4
			Partridgeberry	MIRE
102E:				
Waiska	American basswood	TIAM	Twistedstalk	STREP3
	Balsam fir	ABBA	Thimbleberry	RUPA
	Eastern hemlock	TSCA	Yellow beadlily	CLBO3
	Paper birch	BEPA	Clubmoss	LYCOP6
	Quaking aspen	POTRT	Starflower	TRBO2
	Sugar maple	ACSA3	Large leaved aster	ASMA2
	Yellow birch	BEAL2	Wild sarsaparilla	ARNU2
			Brackenfern	PTAQ
			Ground pine	LYOB
			Sugar maple	ACSA3
			Violet	VIOLA
Garlic	Eastern hemlock	TSCA	Canada mayflower	MACA4
	Eastern white pine	PIST	Yellow beadlily	CLBO3
	Paper birch	BEPA	Wild sarsaparilla	ARNU2
	Quaking aspen	POTRT	Spinulose woodfern	DRCA11
	Red maple	ACRU	Wintergreen	GAPR2
	Red pine	PIRE	Shining clubmoss	HULU2
	Sugar maple	ACSA3	Bunchberry dogwood	COCA13
	Yellow birch	BEAL2	Partridgeberry	MIRE
			Twistedstalk	STAM2
			American starflower	TRBO2
			Ground pine	LYOB
			Sugar maple	ACSA3
102F:				
Waiska	American basswood	TIAM	Violet	VIOLA
	Balsam fir	ABBA	Thimbleberry	RUPA
	Eastern hemlock	TSCA	Twistedstalk	STREP3
	Paper birch	BEPA	Clubmoss	LYCOP6
	Quaking aspen	POTRT	Large leaved aster	ASMA2
	Sugar maple	ACSA3	Wild sarsaparilla	ARNU2
	Yellow birch	BEAL2	Brackenfern	PTAQ
			Ground pine	LYOB
			Sugar maple	ACSA3
			Yellow beadlily	CLBO3
			Starflower	TRBO2

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
102F:				
Garlic------------------	Eastern hemlock	TSCA	Sugar maple	ACSA3
	Eastern white pine	PIST	Wild sarsaparilla	ARNU2
	Paper birch	BEPA	Spinulose woodfern	DRCA11
	Quaking aspen	POTRT	Yellow beadlily	CLBO3
	Red maple	ACRU	Ground pine	LYOB
	Red pine	PIRE	American starflower	TRBO2
	Sugar maple	ACSA3	Bunchberry dogwood	COCA13
	Yellow birch	BEAL2	Wintergreen	GAPR2
			Shining clubmoss	HULU2
			Canada mayflower	MACA4
			Partridgeberry	MIRE
			Twistedstalk	STAM2
110B:				
Shelldrake--------------	Jack pine	PIBA2	Shining club moss	HULU2
	Red pine	PIRE	Wintergreen	PYROL
			Lowbush blueberry	VAAN
			Wood sorrel	OXMO
			Brackenfern	PTERI
			Sedge	CAREX
			Wild lily-of-the- valley	MACA4
			Starflower	TRIEN
			Twinflower	LINNA
			Hairgrass	DESCH
			Spinulose shield fern	DRSP4
			Goldthread	COPTI
			Blueberry	VACCI
Croswell----------------	Bigtooth aspen	POGR4	Trailing arbutus	EPRE2
	Black cherry	PRSE2	Swordfern	DRSE*
	Eastern white pine	PIST	Wintergreen	GAPR2
	Jack pine	PIBA2	Northern twinflower	LIBO3
	Northern red oak	QURU	Pin cherry	PRPE2
	Paper birch	BEPA	Brackenfern	PTERI
	Quaking aspen	POTRT	Thimbleberry	RUPA
	Red maple	ACRU	Starflower	TRIEN
	Red pine	PIRE	Blueberry	VACCI
111B:				
Deer Park---------------	American beech	FAGR	Eastern teaberry	GAPR2
	Black cherry	PRSE2	Vaccinium	VACCI
	Eastern white pine	PIST	Brackenfern	PTERI
	Jack pine	PIBA2	Sweet fern	COPE80
	Northern red oak	QURU	Kinnikinnick	ARUV
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red pine	PIRE		
111D:				
Deer Park---------------	American beech	FAGR	Brackenfern	PTERI
	Black cherry	PRSE2	Sweet fern	COPE80
	Eastern white pine	PIST	Kinnikinnick	ARUV
	Jack pine	PIBA2	Eastern teaberry	GAPR2
	Northern red oak	QURU	Vaccinium	VACCI
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red pine	PIRE		

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
111E:				
Deer Park	American beech	FAGR	Vaccinium	VACCI
	Black cherry	PRSE2	Sweet fern	COPE80
	Eastern white pine	PIST	Kinnikinnick	ARUV
	Jack pine	PIBA2	Eastern teaberry	GAPR2
	Northern red oak	QURU	Brackenfern	PTERI
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red pine	PIRE		
111F:				
Deer Park	American beech	FAGR	Eastern teaberry	GAPR2
	Black cherry	PRSE2	Kinnikinnick	ARUV
	Eastern white pine	PIST	Sweet fern	COPE80
	Jack pine	PIBA2	Brackenfern	PTERI
	Northern red oak	QURU	Vaccinium	VACCI
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red pine	PIRE		
112C:				
Deer Park	American beech	FAGR	Kinnikinnick	ARUV
	Black cherry	PRSE2	Vaccinium	VACCI
	Eastern white pine	PIST	Brackenfern	PTERI
	Jack pine	PIBA2	Sweet fern	COPE80
	Northern red oak	QURU	Eastern teaberry	GAPR2
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red pine	PIRE		
Croswell	Bigtooth aspen	POGR4	Blueberry	VACCI
	Black cherry	PRSE2	Starflower	TRIEN
	Eastern white pine	PIST	Thimbleberry	RUPA
	Jack pine	PIBA2	Brackenfern	PTERI
	Northern red oak	QURU	Pin cherry	PRPE2
	Paper birch	BEPA	Trailing arbutus	EPRE2
	Quaking aspen	POTRT	Wintergreen	GAPR2
	Red maple	ACRU	Northern twinflower	LIBO3
	Red pine	PIRE	Swordfern	DRSE*
113C:				
Rubicon	Bigtooth aspen	POGR4	American witchhazel	HAVI4
	Eastern white pine	PIST	Canada beadruby	MACA4
	Jack pine	PIBA2	Western brackenfern	PTAQ
	Northern red oak	QURU	American starflower	TRBO2
	Paper birch	BEPA	American beech	FAGR
	Quaking aspen	POTR5	Beaked hazelnut	COCO6
	Red maple	ACRU	Sedge	CAREX
	Red pine	PIRE	American hornbeam	CACA18
			Bigleaf aster	ASMA2
			Wild sarsaparilla	ARNU2
			Sugar maple	ACSA3
Croswell	Bigtooth aspen	POGR4	Blueberry	VACCI
	Black cherry	PRSE2	Starflower	TRIEN
	Eastern white pine	PIST	Thimbleberry	RUPA
	Jack pine	PIBA2	Brackenfern	PTERI
	Northern red oak	QURU	Northern twinflower	LIBO3
	Paper birch	BEPA	Wintergreen	GAPR2
	Quaking aspen	POTRT	Swordfern	DRSE*
	Red maple	ACRU	Trailing arbutus	EPRE2
	Red pine	PIRE	Pin cherry	PRPE2

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
120B:				
Garlic------------------	Eastern hemlock	TSCA	Ground pine	LYOB
	Eastern white pine	PIST	Sugar maple	ACSA3
	Paper birch	BEPA	Wild sarsaparilla	ARNU2
	Quaking aspen	POTRT	Spinulose woodfern	DRCA11
	Red maple	ACRU	Wintergreen	GAPR2
	Red pine	PIRE	Shining clubmoss	HULU2
	Sugar maple	ACSA3	Canada mayflower	MACA4
	Yellow birch	BEAL2	Partridgeberry	MIRE
			Twistedstalk	STAM2
			American starflower	TRBO2
			Yellow beadlily	CLBO3
			Bunchberry dogwood	COCA13
120D:				
Garlic------------------	Eastern hemlock	TSCA	Sugar maple	ACSA3
	Eastern white pine	PIST	Wild sarsaparilla	ARNU2
	Paper birch	BEPA	Spinulose woodfern	DRCA11
	Quaking aspen	POTRT	Wintergreen	GAPR2
	Red maple	ACRU	Shining clubmoss	HULU2
	Red pine	PIRE	Canada mayflower	MACA4
	Sugar maple	ACSA3	Partridgeberry	MIRE
	Yellow birch	BEAL2	Twistedstalk	STAM2
			American starflower	TRBO2
			Ground pine	LYOB
			Bunchberry dogwood	COCA13
			Yellow beadlily	CLBO3
120E:				
Garlic------------------	Eastern hemlock	TSCA	Bunchberry dogwood	COCA13
	Eastern white pine	PIST	Spinulose woodfern	DRCA11
	Paper birch	BEPA	Wintergreen	GAPR2
	Quaking aspen	POTRT	Canada mayflower	MACA4
	Red maple	ACRU	Sugar maple	ACSA3
	Red pine	PIRE	Wild sarsaparilla	ARNU2
	Sugar maple	ACSA3	Ground pine	LYOB
	Yellow birch	BEAL2	Yellow beadlily	CLBO3
			Shining clubmoss	HULU2
			Partridgeberry	MIRE
			Twistedstalk	STAM2
			American starflower	TRBO2
125A:				
Croswell----------------	Bigtooth aspen	POGR4	Thimbleberry	RUPA
	Black cherry	PRSE2	Wintergreen	GAPR2
	Eastern white pine	PIST	Northern twinflower	LIBO3
	Jack pine	PIBA2	Pin cherry	PRPE2
	Northern red oak	QURU	Blueberry	VACCI
	Paper birch	BEPA	Starflower	TRIEN
	Quaking aspen	POTRT	Trailing arbutus	EPRE2
	Red maple	ACRU	Brackenfern	PTERI
	Red pine	PIRE	Swordfern	DRSE*
Au Gres-----------------	Balsam fir	ABBA	Common ninebark	PHOP
	Bigtooth aspen	POGR4	Blackberry	RUBUS
	Eastern hemlock	TSCA	Eastern hemlock	TSCA
	Eastern white pine	PIST	American hazelnut	COAM3
	Jack pine	PIBA2	Vaccinium	VACCI
	Northern whitecedar	THOC2-1		
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red maple	ACRU		
	Yellow birch	BEAL2		

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
126B:				
Au Gres-----------------	Balsam fir	ABBA	Blackberry	RUBUS
	Bigtooth aspen	POGR4	Eastern hemlock	TSCA
	Eastern hemlock	TSCA	American hazelnut	COAM3
	Eastern white pine	PIST	Common ninebark	PHOP
	Jack pine	PIBA2	Vaccinium	VACCI
	Northern whitecedar	THOC2-1		
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red maple	ACRU		
	Yellow birch	BEAL2		
Deford------------------	Balsam fir	ABBA	Red maple	ACRU
	Black ash	FRNI	Sedge	CAREX
	Eastern arborvitae	THOC2	Bunchberry dogwood	COCA13
	Quaking aspen	POTRT	Sphagnum moss	SPHAG*
	Red maple	ACRU	Northern whitecedar	THOC2
	White spruce	PIGL		
Croswell----------------	Bigtooth aspen	POGR4	Trailing arbutus	EPRE2
	Black cherry	PRSE2	Swordfern	DRSE*
	Eastern white pine	PIST	Wintergreen	GAPR2
	Jack pine	PIBA2	Northern twinflower	LIBO3
	Northern red oak	QURU	Pin cherry	PRPE2
	Paper birch	BEPA	Brackenfern	PTERI
	Quaking aspen	POTRT	Thimbleberry	RUPA
	Red maple	ACRU	Starflower	TRIEN
	Red pine	PIRE	Blueberry	VACCI
127A:				
Au Gres-----------------	Balsam fir	ABBA	Blackberry	RUBUS
	Bigtooth aspen	POGR4	Vaccinium	VACCI
	Eastern hemlock	TSCA	Common ninebark	PHOP
	Eastern white pine	PIST	American hazelnut	COAM3
	Jack pine	PIBA2	Eastern hemlock	TSCA
	Northern whitecedar	THOC2-1		
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red maple	ACRU		
	Yellow birch	BEAL2		
Kinross-----------------	Balsam fir	ABBA	Balsam fir	ABBA
	Black spruce	PIMA	Jack pine	PIBA2
	Eastern white pine	PIST	Vaccinium	VACCI
	Jack pine	PIBA2	Speckled alder	ALINR
	Northern whitecedar	THOC2-1	Northern whitecedar	THOC2-1
	Paper birch	BEPA	Eastern hemlock	TSCA
	Quaking aspen	POTR5		
	Red maple	ACRU		
	Tamarack	LALA		
130C:				
Garlic------------------	Eastern hemlock	TSCA	Spinulose woodfern	DRCA11
	Eastern white pine	PIST	Bunchberry dogwood	COCA13
	Paper birch	BEPA	Yellow beadlily	CLBO3
	Quaking aspen	POTRT	Ground pine	LYOB
	Red maple	ACRU	Sugar maple	ACSA3
	Red pine	PIRE	Wild sarsaparilla	ARNU2
	Sugar maple	ACSA3	Wintergreen	GAPR2
	Yellow birch	BEAL2	Shining clubmoss	HULU2
			Canada mayflower	MACA4
			Partridgeberry	MIRE
			Twistedstalk	STAM2
			American starflower	TRBO2

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
130C:				
Alcona	American basswood	TIAM	Canada mayflower	MACA4
	Eastern white pine	PIST	Spinulose woodfern	DRCA11
	Northern red oak	QURU	Downy yellow violet	VIPU3
	Red maple	ACRU	Elderberry	SAMBU
	Red pine	PIRE	Hairy Solomon's seal	POPU4
	Sugar maple	ACSA3	Twistedstalk	STAM2
	Yellow birch	BEAL2	Starflower	TRIEN
			Sedge	CAREX
130E:				
Garlic	Eastern hemlock	TSCA	Shining clubmoss	HULU2
	Eastern white pine	PIST	Wintergreen	GAPR2
	Paper birch	BEPA	Bunchberry dogwood	COCA13
	Quaking aspen	POTRT	Yellow beadlily	CLBO3
	Red maple	ACRU	Ground pine	LYOB
	Red pine	PIRE	American starflower	TRBO2
	Sugar maple	ACSA3	Twistedstalk	STAM2
	Yellow birch	BEAL2	Partridgeberry	MIRE
			Canada mayflower	MACA4
			Spinulose woodfern	DRCA11
			Wild sarsaparilla	ARNU2
			Sugar maple	ACSA3
Alcona	American basswood	TIAM	Sedge	CAREX
	Eastern white pine	PIST	Hairy Solomon's seal	POPU4
	Northern red oak	QURU	Canada mayflower	MACA4
	Red maple	ACRU	Spinulose woodfern	DRCA11
	Red pine	PIRE	Downy yellow violet	VIPU3
	Sugar maple	ACSA3	Elderberry	SAMBU
	Yellow birch	BEAL2	Twistedstalk	STAM2
			Starflower	TRIEN
133C:				
Keweenaw	Balsam fir	ABBA	Yellow bluebeadlily	CLBO3
	Black cherry	PRSE2	Spinulose woodfern	DRCA11
	Eastern hemlock	TSCA	Wild sarsaparilla	ARNU2
	Eastern white pine	PIST	Shining clubmoss	HULU2
	Northern red oak	QURU	American starflower	TRBO2
	Paper birch	BEPA	Sambucus racemosa	SARAR3
	Quaking aspen	POTR5	Var. racemosa	
	Red maple	ACRU	Canada beadruby	MACA4
	Sugar maple	ACSA3	Western brackenfern	PTAQ
	Yellow birch	BEAL2	Streptopus	STLAR
			Lanceolatus var.	
			Roseus	
			Feather Solomon's seal	MARAR
Garlic	Eastern hemlock	TSCA	Shining clubmoss	HULU2
	Eastern white pine	PIST	Bunchberry dogwood	COCA13
	Paper birch	BEPA	Wintergreen	GAPR2
	Quaking aspen	POTRT	Spinulose woodfern	DRCA11
	Red maple	ACRU	Wild sarsaparilla	ARNU2
	Red pine	PIRE	Sugar maple	ACSA3
	Sugar maple	ACSA3	Canada mayflower	MACA4
	Yellow birch	BEAL2	Partridgeberry	MIRE
			Twistedstalk	STAM2
			American starflower	TRBO2
			Ground pine	LYOB
			Yellow beadlily	CLBO3

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
133E:				
Keweenaw	Balsam fir	ABBA	Shining clubmoss	HULU2
	Black cherry	PRSE2	Yellow bluebeadlily	CLBO3
	Eastern hemlock	TSCA	Spinulose woodfern	DRCA11
	Eastern white pine	PIST	Wild sarsaparilla	ARNU2
	Northern red oak	QURU	American starflower	TRBO2
	Paper birch	BEPA	Sambucus racemosa	SARAR3
	Quaking aspen	POTR5	Var. racemosa	
	Red maple	ACRU	Canada beadruby	MACA4
	Sugar maple	ACSA3	Western brackenfern	PTAQ
	Yellow birch	BEAL2	Streptopus	STLAR
			Lanceolatus var.	
			Roseus	
			Feather Solomon's seal	MARAR
Garlic	Eastern hemlock	TSCA	Sugar maple	ACSA3
	Eastern white pine	PIST	Wintergreen	GAPR2
	Paper birch	BEPA	Ground pine	LYOB
	Quaking aspen	POTRT	Canada mayflower	MACA4
	Red maple	ACRU	Partridgeberry	MIRE
	Red pine	PIRE	Wild sarsaparilla	ARNU2
	Sugar maple	ACSA3	Twistedstalk	STAM2
	Yellow birch	BEAL2	American starflower	TRBO2
			Yellow beadlily	CLBO3
			Bunchberry dogwood	COCA13
			Spinulose woodfern	DRCA11
			Shining clubmoss	HULU2
133F:				
Keweenaw	Balsam fir	ABBA	Yellow bluebeadlily	CLBO3
	Black cherry	PRSE2	Shining clubmoss	HULU2
	Eastern hemlock	TSCA	Spinulose woodfern	DRCA11
	Eastern white pine	PIST	Wild sarsaparilla	ARNU2
	Northern red oak	QURU	American starflower	TRBO2
	Paper birch	BEPA	Sambucus racemosa	SARAR3
	Quaking aspen	POTR5	Var. racemosa	
	Red maple	ACRU	Canada beadruby	MACA4
	Sugar maple	ACSA3	Western brackenfern	PTAQ
	Yellow birch	BEAL2	Streptopus	STLAR
			Lanceolatus var.	
			Roseus	
			Feather Solomon's seal	MARAR
Garlic	Eastern hemlock	TSCA	Sugar maple	ACSA3
	Eastern white pine	PIST	Wild sarsaparilla	ARNU2
	Paper birch	BEPA	Spinulose woodfern	DRCA11
	Quaking aspen	POTRT	Wintergreen	GAPR2
	Red maple	ACRU	Shining clubmoss	HULU2
	Red pine	PIRE	Canada mayflower	MACA4
	Sugar maple	ACSA3	Partridgeberry	MIRE
	Yellow birch	BEAL2	Ground pine	LYOB
			Yellow beadlily	CLBO3
			Bunchberry dogwood	COCA13
			Twistedstalk	STAM2
			American starflower	TRBO2

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
136B:				
Borgstrom	American beech	FAGR	Bunchberry dogwood	COCA13
	Eastern hemlock	TSCA	Starflower	TRIEN
	Quaking aspen	POTR5	Spinulose woodfern	DRCA11
	Red maple	ACRU	Mountain woodsorrel	OXMO
	Sugar maple	ACSA3	Red maple	ACRU
	Yellow birch	BEAL2	Sugar maple	ACSA3
Ingalls	Balsam fir	ABBA	Sweet fern	COPE80
	Eastern hemlock	TSCA	American elm	ULAM
	Jack pine	PIBA2	Blackberry	RUBUS
	Northern pin oak	QUEL	Sedge	CAREX
	Northern whitecedar	THOC2-1		
	Paper birch	BEPA		
	Quaking aspen	POTR5		
	Red maple	ACRU		
	Sugar maple	ACSA3		
	White ash	FRAM2		
142C:				
Wallace	Balsam fir	ABBA	Bluebell bellflower	CARO2
	Eastern hemlock	TSCA	Twinflower	LIBO3
	Eastern white pine	PIST	Western brackenfern	PTAQ
	Paper birch	BEPA	Kinnikinnick	ARUV
	Quaking aspen	POTR5		
	Red maple	ACRU		
	Red pine	PIRE		
	Sugar maple	ACSA3		
Rubicon	Bigtooth aspen	POGR4	Beaked hazelnut	COCO6
	Eastern white pine	PIST	American beech	FAGR
	Jack pine	PIBA2	American witchhazel	HAVI4
	Northern red oak	QURU	Canada beadruby	MACA4
	Paper birch	BEPA	Western brackenfern	PTAQ
	Quaking aspen	POTR5	American starflower	TRBO2
	Red maple	ACRU	Sugar maple	ACSA3
	Red pine	PIRE	Sedge	CAREX
			American hornbeam	CACA18
			Bigleaf aster	ASMA2
			Wild sarsaparilla	ARNU2
142F:				
Wallace	Balsam fir	ABBA	Twinflower	LIBO3
	Eastern hemlock	TSCA	Kinnikinnick	ARUV
	Eastern white pine	PIST	Bluebell bellflower	CARO2
	Paper birch	BEPA	Western brackenfern	PTAQ
	Quaking aspen	POTR5		
	Red maple	ACRU		
	Red pine	PIRE		
	Sugar maple	ACSA3		
Rubicon	Bigtooth aspen	POGR4	Wild sarsaparilla	ARNU2
	Eastern white pine	PIST	Bigleaf aster	ASMA2
	Jack pine	PIBA2	American starflower	TRBO2
	Northern red oak	QURU	American hornbeam	CACA18
	Paper birch	BEPA	Sugar maple	ACSA3
	Quaking aspen	POTR5	Western brackenfern	PTAQ
	Red maple	ACRU	Canada beadruby	MACA4
	Red pine	PIRE	American witchhazel	HAVI4
			American beech	FAGR
			Beaked hazelnut	COCO6
			Sedge	CAREX

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
155C:				
Montreal	American basswood	TIAM	Violet	VIOLA
	Eastern hemlock	TSCA	Canada beadruby	MACA4
	Eastern hophornbeam	OSVI	Claspleaf twistedstalk	STAM2
	Northern red oak	QURU	Sugar maple	ACSA3
	Quaking aspen	POTR5	Clayton's sweetroot	OSCL
	Red maple	ACRU	Sambucus racemosa Var. racemosa	SARAR3
	Sugar maple	ACSA3	American starflower	TRBO2
	Yellow birch	BEAL2	Spinulose woodfern	DRCA11
			Wild sarsaparilla	ARNU2
Paavola	American basswood	TIAM	Spinulose woodfern	DRCA11
	Eastern hemlock	TSCA	Clayton's sweetroot	OSCL
	Eastern hophornbeam	OSVI	Sambucus racemosa Var. racemosa	SARAR3
	Northern red oak	QURU	Wild sarsaparilla	ARNU2
	Quaking aspen	POTR5	American starflower	TRBO2
	Red maple	ACRU	Sugar maple	ACSA3
	Sugar maple	ACSA3	Claspleaf twistedstalk	STAM2
	Yellow birch	BEAL2	Canada beadruby	MACA4
			Violet	VIOLA
Waiska	American basswood	TIAM	Thimbleberry	RUPA
	Balsam fir	ABBA	Yellow beadlily	CLBO3
	Eastern hemlock	TSCA	Starflower	TRBO2
	Paper birch	BEPA	Large leaved aster	ASMA2
	Quaking aspen	POTRT	Wild sarsaparilla	ARNU2
	Sugar maple	ACSA3	Violet	VIOLA
	Yellow birch	BEAL2	Sugar maple	ACSA3
			Twistedstalk	STREP3
			Ground pine	LYOB
			Brackenfern	PTAQ
			Clubmoss	LYCOP6
155E:				
Montreal	American basswood	TIAM	Sugar maple	ACSA3
	Eastern hemlock	TSCA	Claspleaf twistedstalk	STAM2
	Eastern hophornbeam	OSVI	Canada beadruby	MACA4
	Northern red oak	QURU	Violet	VIOLA
	Quaking aspen	POTR5	Sambucus racemosa Var. racemosa	SARAR3
	Red maple	ACRU	American starflower	TRBO2
	Sugar maple	ACSA3	Clayton's sweetroot	OSCL
	Yellow birch	BEAL2	Wild sarsaparilla	ARNU2
			Spinulose woodfern	DRCA11
Paavola	American basswood	TIAM	Spinulose woodfern	DRCA11
	Eastern hemlock	TSCA	Wild sarsaparilla	ARNU2
	Eastern hophornbeam	OSVI	Clayton's sweetroot	OSCL
	Northern red oak	QURU	American starflower	TRBO2
	Quaking aspen	POTR5	Sambucus racemosa Var. racemosa	SARAR3
	Red maple	ACRU	Violet	VIOLA
	Sugar maple	ACSA3	Canada beadruby	MACA4
	Yellow birch	BEAL2	Claspleaf twistedstalk	STAM2
			Sugar maple	ACSA3

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
155E:				
Waiska------------------	American basswood	TIAM	Yellow beadlily	CLBO3
	Balsam fir	ABBA	Wild sarsaparilla	ARNU2
	Eastern hemlock	TSCA	Twistedstalk	STREP3
	Paper birch	BEPA	Violet	VIOLA
	Quaking aspen	POTRT	Thimbleberry	RUPA
	Sugar maple	ACSA3	Clubmoss	LYCOP6
	Yellow birch	BEAL2	Starflower	TRBO2
			Large leaved aster	ASMA2
			Sugar maple	ACSA3
			Brackenfern	PTAQ
			Ground pine	LYOB
158A:				
Arnheim-----------------	American elm	ULAM	Speckled alder	ALINR
	Balsam fir	ABBA	Sphagnum moss	SPHAG*
	Black spruce	PIMA	Sedge	CAREX
	Northern whitecedar	THOC2-1	Cinnamon fern	OSCI
	Paper birch	BEPA	Jewelweed	IMCA
	Quaking aspen	POTR5	Mint	MENTH
	Red maple	ACRU	Nettle	URTIC
	Tamarack	LALA	Balsam fir	ABBA
	White spruce	PIGL	Common ladyfern	ATFI
			Willow	SALIX
			Red maple	ACRU
Sturgeon----------------	American basswood	TIAM	Sedge	CAREX
	American elm	ULAM	Spinulose woodfern	DRCA11
	Balsam fir	ABBA	Yellow birch	BEAL2
	Eastern hemlock	TSCA	Sugar maple	ACSA3
	Northern whitecedar	THOC2-1	Canada beadruby	MACA4
	Quaking aspen	POTR5	Common ladyfern	ATFI
	Red maple	ACRU	Willow	SALIX
	Sugar maple	ACSA3	Red maple	ACRU
	White spruce	PIGL	Redosier dogwood	COSES
	Yellow birch	BEAL2	Clayton's sweetroot	OSCL
			White spruce	PIGL
Pelkie------------------	American basswood	TIAM	Streptopus	STLAR
	American elm	ULAM	Lanceolatus var.	
	Red maple	ACRU	Roseus	
	Sugar maple	ACSA3	Canada beadruby	MACA4
	White spruce	PIGL	Common ladyfern	ATFI
	Yellow birch	BEAL2	Violet	VIOLA
			American starflower	TRBO2
			Sugar maple	ACSA3
			Sedge	CAREX
			Spinulose woodfern	DRCA11
			Clayton's sweetroot	OSCL
			Hairy Solomon's seal	POPU4
161F:				
Trimountain-------------	American basswood	TIAM	Spinulose woodfern	DRCA11
	Eastern hemlock	TSCA	Wild sarsaparilla	ARNU2
	Eastern hophornbeam	OSVI	Clayton's sweetroot	OSCL
	Northern red oak	QURU	Sambucus racemosa	SARAR3
	Quaking aspen	POTR5	Var. racemosa	
	Red maple	ACRU	Violet	VIOLA
	Sugar maple	ACSA3	Canada beadruby	MACA4
	Yellow birch	BEAL2	Claspleaf twistedstalk	STAM2
			Sugar maple	ACSA3

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
161F:				
Lac La Belle	American basswood	TIAM	Spinulose woodfern	DRCA11
	Eastern hemlock	TSCA	Wild sarsaparilla	ARNU2
	Eastern hophornbeam	OSVI	Clayton's sweetroot	OSCL
	Northern red oak	QURU	American starflower	TRBO2
	Quaking aspen	POTR5	Sambucus racemosa	SARAR3
	Red maple	ACRU	Var. racemosa	
	Sugar maple	ACSA3	Violet	VIOLA
			Canada beadruby	MACA4
			Claspleaf twistedstalk	STAM2
			Sugar maple	ACSA3
Waiska	American basswood	TIAM	Thimbleberry	RUPA
	Balsam fir	ABBA	Wild sarsaparilla	ARNU2
	Eastern hemlock	TSCA	Twistedstalk	STREP3
	Paper birch	BEPA	Sugar maple	ACSA3
	Quaking aspen	POTRT	Ground pine	LYOB
	Sugar maple	ACSA3	Brackenfern	PTAQ
	Yellow birch	BEAL2	Large leaved aster	ASMA2
			Starflower	TRBO2
			Violet	VIOLA
			Clubmoss	LYCOP6
			Yellow beadlily	CLBO3
162F:				
Trimountain	American basswood	TIAM	Violet	VIOLA
	Eastern hemlock	TSCA	Claspleaf twistedstalk	STAM2
	Eastern hophornbeam	OSVI		
	Northern red oak	QURU	Sugar maple	ACSA3
	Quaking aspen	POTR5	Canada beadruby	MACA4
	Red maple	ACRU	Spinulose woodfern	DRCA11
	Sugar maple	ACSA3	Wild sarsaparilla	ARNU2
	Yellow birch	BEAL2	Clayton's sweetroot	OSCL
			Sambucus racemosa	SARAR3
			Var. racemosa	
Lac La Belle	American basswood	TIAM	Wild sarsaparilla	ARNU2
	Eastern hemlock	TSCA	Clayton's sweetroot	OSCL
	Eastern hophornbeam	OSVI	American starflower	TRBO2
	Northern red oak	QURU	Sambucus racemosa	SARAR3
	Quaking aspen	POTR5	Var. racemosa	
	Red maple	ACRU	Violet	VIOLA
	Sugar maple	ACSA3	Sugar maple	ACSA3
			Claspleaf twistedstalk	STAM2
			Canada beadruby	MACA4
			Spinulose woodfern	DRCA11
Michigamme	Balsam fir	ABBA	Canada beadruby	MACA4
	Bigtooth aspen	POGR4	Sugar maple	ACSA3
	Black cherry	PRSE2	Sedge	CAREX
	Eastern hemlock	TSCA	Yellow bluebeadlily	CLBO3
	Red maple	ACRU	Spinulose woodfern	DRCA11
	Sugar maple	ACSA3	American fly honeysuckle	LOCA7
	White spruce	PIGL		
	Yellow birch	BEAL2	Shining clubmoss	HULU2
			Hairy Solomon's seal	POPU4
			Yellow birch	BEAL2
			Sambucus racemosa	SARAR3
			Var. racemosa	
			Balsam fir	ABBA

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
166B:				
Gratiot	Balsam fir	ABBA	Mountain woodsorrel	OXMO
	Bigtooth aspen	POGR4	Shining clubmoss	HULU2
	Eastern hemlock	TSCA	Threeleaf goldthread	COTR2
	Paper birch	BEPA	Wild sarsaparilla	ARNU2
	Quaking aspen	POTR5	Spinulose woodfern	DRCA11
	Red maple	ACRU	Yellow bluebeadlily	CLBO3
	White spruce	PIGL	Sedge	CAREX
	Yellow birch	BEAL2	Canada beadruby	MACA4
			Bunchberry dogwood	COCA13
			Hairy Solomon's seal	POPU4
			American starflower	TRBO2
			Red maple	ACRU
			Sambucus racemosa Var. racemosa	SARAR3
			Common ladyfern	ATFI
			Balsam fir	ABBA
Sabattis	Balsam fir	ABBA	Balsam fir	ABBA
	Black ash	FRNI	American elm	ULAM
	Black spruce	PIMA	Bunchberry dogwood	COCA13
	Northern whitecedar	THOC2-1	Northern whitecedar	THOC2-1
	Quaking aspen	POTR5	Idaho goldthread	COOC
	Red maple	ACRU	Eastern hemlock	TSCA
	Tamarack	LALA	Sedge	CAREX
	White spruce	PIGL	Speckled alder	ALINR
	Yellow birch	BEAL2	American starflower	TRBO2
173C:				
Montreal	American basswood	TIAM	Claspleaf twistedstalk	STAM2
	Eastern hemlock	TSCA		
	Eastern hophornbeam	OSVI	Sambucus racemosa Var. racemosa	SARAR3
	Northern red oak	QURU		
	Quaking aspen	POTR5	Sugar maple	ACSA3
	Red maple	ACRU	Violet	VIOLA
	Sugar maple	ACSA3	Spinulose woodfern	DRCA11
	Yellow birch	BEAL2	Wild sarsaparilla	ARNU2
			Clayton's sweetroot	OSCL
			American starflower	TRBO2
			Canada beadruby	MACA4
Paavola	American basswood	TIAM	Clayton's sweetroot	OSCL
	Eastern hemlock	TSCA	American starflower	TRBO2
	Eastern hophornbeam	OSVI	Sambucus racemosa Var. racemosa	SARAR3
	Northern red oak	QURU		
	Quaking aspen	POTR5	Violet	VIOLA
	Red maple	ACRU	Canada beadruby	MACA4
	Sugar maple	ACSA3	Spinulose woodfern	DRCA11
	Yellow birch	BEAL2	Sugar maple	ACSA3
			Wild sarsaparilla	ARNU2
			Claspleaf twistedstalk	STAM2

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
173C:				
Dishno	Balsam fir	ABBA	Bedstraw	GALIU
	Eastern hemlock	TSCA	American fly honeysuckle	LOCA7
	Eastern white pine	PIST		
	Quaking aspen	POTRT	Yellow beadlily	CLBO3
	Red maple	ACRU	Brackenfern	PTAQ
	Sugar maple	ACSA3	Sugar maple	ACSA3
	Yellow birch	BEAL2	Balsam fir	ABBA
			Red maple	ACRU
			Northern red oak	QURU
			Yellow birch	BEAL2
			Spinulose shield fern	DRSP4
			Violet	VIOLA
			Wild sarsaparilla	ARNU2
			Large leaved aster	ASMA2
			Northern whitecedar	THOC2
			Twistedstalk	STREP3
173E:				
Montreal	American basswood	TIAM	Canada beadruby	MACA4
	Eastern hemlock	TSCA	Claspleaf twistedstalk	STAM2
	Eastern hophornbeam	OSVI		
	Northern red oak	QURU	Violet	VIOLA
	Quaking aspen	POTR5	Sugar maple	ACSA3
	Red maple	ACRU	Spinulose woodfern	DRCA11
	Sugar maple	ACSA3	Sambucus racemosa	SARAR3
	Yellow birch	BEAL2	Var. racemosa	
			American starflower	TRBO2
			Clayton's sweetroot	OSCL
			Wild sarsaparilla	ARNU2
Paavola	American basswood	TIAM	Sugar maple	ACSA3
	Eastern hemlock	TSCA	Claspleaf twistedstalk	STAM2
	Eastern hophornbeam	OSVI		
	Northern red oak	QURU	Canada beadruby	MACA4
	Quaking aspen	POTR5	Violet	VIOLA
	Red maple	ACRU	Sambucus racemosa	SARAR3
	Sugar maple	ACSA3	Var. racemosa	
	Yellow birch	BEAL2	Clayton's sweetroot	OSCL
			Wild sarsaparilla	ARNU2
			American starflower	TRBO2
			Spinulose woodfern	DRCA11
Dishno	Balsam fir	ABBA	Sugar maple	ACSA3
	Eastern hemlock	TSCA	Balsam fir	ABBA
	Eastern white pine	PIST	Red maple	ACRU
	Quaking aspen	POTRT	Northern red oak	QURU
	Red maple	ACRU	Bedstraw	GALIU
	Sugar maple	ACSA3	Yellow beadlily	CLBO3
	Yellow birch	BEAL2	Brackenfern	PTAQ
			Violet	VIOLA
			Wild sarsaparilla	ARNU2
			Large leaved aster	ASMA2
			American fly honeysuckle	LOCA7
			Twistedstalk	STREP3
			Northern whitecedar	THOC2
			Spinulose shield fern	DRSP4
			Yellow birch	BEAL2

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
174B:				
Montreal	American basswood	TIAM	Canada beadruby	MACA4
	Eastern hemlock	TSCA	Violet	VIOLA
	Eastern hophornbeam	OSVI	Sambucus racemosa	SARAR3
	Northern red oak	QURU	Var. racemosa	
	Quaking aspen	POTR5	American starflower	TRBO2
	Red maple	ACRU	Clayton's sweetroot	OSCL
	Sugar maple	ACSA3	Wild sarsaparilla	ARNU2
	Yellow birch	BEAL2	Spinulose woodfern	DRCA11
			Sugar maple	ACSA3
			Claspleaf twistedstalk	STAM2
Dishno	Balsam fir	ABBA	Yellow beadlily	CLBO3
	Eastern hemlock	TSCA	Sugar maple	ACSA3
	Eastern white pine	PIST	Spinulose shield fern	DRSP4
	Quaking aspen	POTRT	Violet	VIOLA
	Red maple	ACRU	Wild sarsaparilla	ARNU2
	Sugar maple	ACSA3	Large leaved aster	ASMA2
	Yellow birch	BEAL2	American fly honeysuckle	LOCA7
			Twistedstalk	STREP3
			Bedstraw	GALIU
			Brackenfern	PTAQ
			Balsam fir	ABBA
			Red maple	ACRU
			Northern red oak	QURU
			Yellow birch	BEAL2
			Northern whitecedar	THOC2
Gratiot	Balsam fir	ABBA	Shining clubmoss	HULU2
	Bigtooth aspen	POGR4	Bunchberry dogwood	COCA13
	Eastern hemlock	TSCA	Wild sarsaparilla	ARNU2
	Paper birch	BEPA	Spinulose woodfern	DRCA11
	Quaking aspen	POTR5	Yellow bluebeadlily	CLBO3
	Red maple	ACRU	Hairy Solomon's seal	POPU4
	White spruce	PIGL	Canada beadruby	MACA4
	Yellow birch	BEAL2	American starflower	TRBO2
			Sedge	CAREX
			Red maple	ACRU
			Sambucus racemosa	SARAR3
			Var. racemosa	
			Common ladyfern	ATFI
			Balsam fir	ABBA
			Threeleaf goldthread	COTR2
			Mountain woodsorrel	OXMO
177A:				
Assinins	American basswood	TIAM	Drooping woodreed	CILA2
	Balsam fir	ABBA	Sugar maple	ACSA3
	Bigtooth aspen	POGR4	Canada beadruby	MACA4
	Eastern hemlock	TSCA	Balsam fir	ABBA
	Quaking aspen	POTR5	Violet	VIOLA
	Red maple	ACRU	Red maple	ACRU
	Sugar maple	ACSA3	Woodfern	DRYOP
	White spruce	PIGL	Eastern hemlock	TSCA
	Yellow birch	BEAL2	American starflower	TRBO2
			Clubmoss	LYCOP2
			Spinulose woodfern	DRCA11
			Sedge	CAREX

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
183C:				
Munising	Balsam fir	ABBA	Interrupted fern	OSCL2
	Eastern hemlock	TSCA	Oakfern	GYDR
	Paper birch	BEPA	Canada yew	TACA7
	Quaking aspen	POTR5	Violet	VIOLA
	Red maple	ACRU	Starflower	TRIEN
	Sugar maple	ACSA3	Twistedstalk	STAM2
	White spruce	PIGL	Shining clubmoss	HULU2
	Yellow birch	BEAL2	Canada mayflower	MACA4
			Spinulose woodfern	DRCA11
			Red elderberry	SACA11
			Sedge	CAREX
			Sugar maple	ACSA3
Abbaye	Balsam fir	ABBA	Feather Solomon's seal	MARAR
	Eastern hemlock	TSCA		
	Paper birch	BEPA	Streptopus	STLAR
	Quaking aspen	POTR5	Lanceolatus var.	
	Red maple	ACRU	Roseus	
	Sugar maple	ACSA3	Yellow birch	BEAL2
	Yellow birch	BEAL2	Sugar maple	ACSA3
			Canada beadruby	MACA4
			Balsam fir	ABBA
			Sambucus racemosa	SARAR3
			Var. racemosa	
			Hairy Solomon's seal	POPU4
			Shining clubmoss	HULU2
			Spinulose woodfern	DRCA11
			Yellow bluebeadlily	CLBO3
			American starflower	TRBO2
			Sedge	CAREX
Yalmer	American beech	FAGR	Sedge	CAREX
	Balsam fir	ABBA	Spinulose woodfern	DRCA11
	Eastern hemlock	TSCA	Northern maidenhair	ADPE
	Quaking aspen	POTR5	Canadian white violet	VICA4
	Red maple	ACRU		
	Sugar maple	ACSA3	Wild sarsaparilla	ARNU2
	Yellow birch	BEAL2	Sugar maple	ACSA3
			Trillium	TRILL
			Hairy Solomon's seal	POPU4
			Red elderberry	SACA11
			Twistedstalk	STAM2
			False Solomon's seal	SMILA
			Sweet cicely	OSCL
183E:				
Munising	Balsam fir	ABBA	Shining clubmoss	HULU2
	Eastern hemlock	TSCA	Canada mayflower	MACA4
	Paper birch	BEPA	Spinulose woodfern	DRCA11
	Quaking aspen	POTR5	Sedge	CAREX
	Red maple	ACRU	Sugar maple	ACSA3
	Sugar maple	ACSA3	Red elderberry	SACA11
	White spruce	PIGL	Twistedstalk	STAM2
	Yellow birch	BEAL2	Starflower	TRIEN
			Canada yew	TACA7
			Violet	VIOLA
			Interrupted fern	OSCL2
			Oakfern	GYDR

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
183E:				
Abbaye	Balsam fir	ABBA	Feather Solomon's seal	MARAR
	Eastern hemlock	TSCA		
	Paper birch	BEPA	Streptopus	STLAR
	Quaking aspen	POTR5	Lanceolatus var.	
	Red maple	ACRU	Roseus	
	Sugar maple	ACSA3	Sedge	CAREX
	Yellow birch	BEAL2	Yellow bluebeadlily	CLBO3
			Spinulose woodfern	DRCA11
			Shining clubmoss	HULU2
			Hairy Solomon's seal	POPU4
			Yellow birch	BEAL2
			Sugar maple	ACSA3
			Canada beadruby	MACA4
			Balsam fir	ABBA
			Sambucus racemosa	SARAR3
			Var. racemosa	
			American starflower	TRBO2
Yalmer	American beech	FAGR	Red elderberry	SACA11
	Balsam fir	ABBA	Hairy Solomon's seal	POPU4
	Eastern hemlock	TSCA	Spinulose woodfern	DRCA11
	Quaking aspen	POTR5	Sedge	CAREX
	Red maple	ACRU	Sugar maple	ACSA3
	Sugar maple	ACSA3	Trillium	TRILL
	Yellow birch	BEAL2	Twistedstalk	STAM2
			False Solomon's seal	SMILA
			Sweet cicely	OSCL
			Northern maidenhair	ADPE
			Wild sarsaparilla	ARNU2
			Canadian white violet	VICA4
184C:				
Munising	Balsam fir	ABBA	Twistedstalk	STAM2
	Eastern hemlock	TSCA	Spinulose woodfern	DRCA11
	Paper birch	BEPA	Interrupted fern	OSCL2
	Quaking aspen	POTR5	Oakfern	GYDR
	Red maple	ACRU	Sugar maple	ACSA3
	Sugar maple	ACSA3	Sedge	CAREX
	White spruce	PIGL	Canada mayflower	MACA4
	Yellow birch	BEAL2	Canada yew	TACA7
			Violet	VIOLA
			Starflower	TRIEN
			Red elderberry	SACA11
			Shining clubmoss	HULU2
Yalmer	American beech	FAGR	Red elderberry	SACA11
	Balsam fir	ABBA	Hairy Solomon's seal	POPU4
	Eastern hemlock	TSCA	Spinulose woodfern	DRCA11
	Quaking aspen	POTR5	Sedge	CAREX
	Red maple	ACRU	Sugar maple	ACSA3
	Sugar maple	ACSA3	Canadian white violet	VICA4
	Yellow birch	BEAL2		
			Twistedstalk	STAM2
			Trillium	TRILL
			False Solomon's seal	SMILA
			Sweet cicely	OSCL
			Wild sarsaparilla	ARNU2
			Northern maidenhair	ADPE

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
184E:				
Munising----------------	Balsam fir	ABBA	Shining clubmoss	HULU2
	Eastern hemlock	TSCA	Interrupted fern	OSCL2
	Paper birch	BEPA	Oakfern	GYDR
	Quaking aspen	POTR5	Sedge	CAREX
	Red maple	ACRU	Spinulose woodfern	DRCA11
	Sugar maple	ACSA3	Canada mayflower	MACA4
	White spruce	PIGL	Canada yew	TACA7
	Yellow birch	BEAL2	Violet	VIOLA
			Starflower	TRIEN
			Twistedstalk	STAM2
			Red elderberry	SACA11
			Sugar maple	ACSA3
Yalmer------------------	American beech	FAGR	Trillium	TRILL
	Balsam fir	ABBA	Hairy Solomon's seal	POPU4
	Eastern hemlock	TSCA	Spinulose woodfern	DRCA11
	Quaking aspen	POTR5	Sedge	CAREX
	Red maple	ACRU	Sugar maple	ACSA3
	Sugar maple	ACSA3	Canadian white violet	VICA4
	Yellow birch	BEAL2		
			Twistedstalk	STAM2
			False Solomon's seal	SMILA
			Sweet cicely	OSCL
			Wild sarsaparilla	ARNU2
			Northern maidenhair	ADPE
			Red elderberry	SACA11
185B:				
Munising----------------	Balsam fir	ABBA	Sugar maple	ACSA3
	Eastern hemlock	TSCA	Sedge	CAREX
	Paper birch	BEPA	Spinulose woodfern	DRCA11
	Quaking aspen	POTR5	Canada mayflower	MACA4
	Red maple	ACRU	Shining clubmoss	HULU2
	Sugar maple	ACSA3	Red elderberry	SACA11
	White spruce	PIGL	Twistedstalk	STAM2
	Yellow birch	BEAL2	Starflower	TRIEN
			Violet	VIOLA
			Canada yew	TACA7
			Oakfern	GYDR
			Interrupted fern	OSCL2
Skanee------------------	Balsam fir	ABBA	Feather Solomon's seal	MARAR
	Eastern hemlock	TSCA		
	Northern whitecedar	THOC2-1	American starflower	TRBO2
	Paper birch	BEPA	Blackberry	RUBUS
	Quaking aspen	POTR5	Wild sarsaparilla	ARNU2
	Red maple	ACRU	Clubmoss	LYCOP2
	Sugar maple	ACSA3	Bunchberry dogwood	COCA13
	Yellow birch	BEAL2	Sugar maple	ACSA3
			Austrian woodfern	DRAU4*
			Canada yew	TACA7
			Violet	VIOLA
			Canada beadruby	MACA4

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
185C:				
Munising	Balsam fir	ABBA	Canada mayflower	MACA4
	Eastern hemlock	TSCA	Shining clubmoss	HULU2
	Paper birch	BEPA	Red elderberry	SACA11
	Quaking aspen	POTR5	Twistedstalk	STAM2
	Red maple	ACRU	Starflower	TRIEN
	Sugar maple	ACSA3	Sedge	CAREX
	White spruce	PIGL	Spinulose woodfern	DRCA11
	Yellow birch	BEAL2	Oakfern	GYDR
			Interrupted fern	OSCL2
			Canada yew	TACA7
			Violet	VIOLA
			Sugar maple	ACSA3
Skanee	Balsam fir	ABBA	Canada beadruby	MACA4
	Eastern hemlock	TSCA	Sugar maple	ACSA3
	Northern whitecedar	THOC2-1	Bunchberry dogwood	COCA13
	Paper birch	BEPA	Feather Solomon's seal	MARAR
	Quaking aspen	POTR5		
	Red maple	ACRU	Violet	VIOLA
	Sugar maple	ACSA3	Canada yew	TACA7
	Yellow birch	BEAL2	Austrian woodfern	DRAU4*
			American starflower	TRBO2
			Clubmoss	LYCOP2
			Blackberry	RUBUS
			Wild sarsaparilla	ARNU2
187A:				
Skanee	Balsam fir	ABBA	Wild sarsaparilla	ARNU2
	Eastern hemlock	TSCA	Clubmoss	LYCOP2
	Northern whitecedar	THOC2-1	Canada beadruby	MACA4
	Paper birch	BEPA	Violet	VIOLA
	Quaking aspen	POTR5	Canada yew	TACA7
	Red maple	ACRU	Sugar maple	ACSA3
	Sugar maple	ACSA3	Feather Solomon's seal	MARAR
	Yellow birch	BEAL2		
			Blackberry	RUBUS
			Bunchberry dogwood	COCA13
			American starflower	TRBO2
			Austrian woodfern	DRAU4*
Gay	Balsam fir	ABBA	Red maple	ACRU
	Eastern hemlock	TSCA	Willow	SALIX
	Northern whitecedar	THOC2-1	Northern whitecedar	THOC2-1
	Paper birch	BEPA	Common ladyfern	ATFI
	Quaking aspen	POTR5	American elm	ULAM
	Red maple	ACRU	Balsam fir	ABBA
	White spruce	PIGL	Eastern hemlock	TSCA
	Yellow birch	BEAL2	American starflower	TRBO2
			Bunchberry dogwood	COCA13
			Canada beadruby	MACA4
			Spinulose woodfern	DRCA11
			Sedge	CAREX
			Speckled alder	ALINR
192B:				
Nipissing	Balsam fir	ABBA	Wild sarsaparilla	ARNU2
	Northern whitecedar	THOC2-1	Mapleleaf viburnum	VIAC
	Paper birch	BEPA	Thimbleberry	RUPA
	Quaking aspen	POTR5	Bigleaf aster	ASMA2
	White spruce	PIGL		

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
192B:				
Arcadian	American basswood	TIAM	Wild sarsaparilla	ARNU2
	Eastern hemlock	TSCA	Spinulose woodfern	DRCA11
	Eastern hophornbeam	OSVI	American starflower	TRBO2
	Northern red oak	QURU	Violet	VIOLA
	Quaking aspen	POTR5	Canada beadruby	MACA4
	Red maple	ACRU	Clayton's sweetroot	OSCL
	Sugar maple	ACSA3	Claspleaf twistedstalk	STAM2
	White ash	FRAM2		
	Yellow birch	BEAL2	Sambucus racemosa Var. racemosa	SARAR3
			Sugar maple	ACSA3
Rock outcrop.				
194B:				
Copper Harbor	American basswood	TIAM	---	
	Balsam fir	ABBA		
	Eastern hemlock	TSCA		
	Paper birch	BEPA		
	Quaking aspen	POTRT		
	Sugar maple	ACSA3		
	Yellow birch	BEAL2		
195B:				
Copper Harbor	American basswood	TIAM	---	
	Balsam fir	ABBA		
	Eastern hemlock	TSCA		
	Paper birch	BEPA		
	Quaking aspen	POTRT		
	Sugar maple	ACSA3		
	Yellow birch	BEAL2		
Bete Grise	American basswood	TIAM	Large leaved aster	ASMA2
	Balsam fir	ABBA	Violet	VIOLA
	Eastern hemlock	TSCA	Lily-of-the-valley	COMA3
	Paper birch	BEPA	Bedstraw	GALIU
	Quaking aspen	POTRT	Paper birch	BEPA
	Sugar maple	ACSA3	Red maple	ACRU
	Yellow birch	BEAL2	Balsam fir	ABBA
			Quaking aspen	POTR5
			Brackenfern	PTAQ
			Northern whitecedar	THOC2
			Bunchberry dogwood	COCA13
			Thimbleberry	RUPA
			Starflower	TRBO2
			White spruce	PIGL
196B:				
Bete Grise	American basswood	TIAM	Balsam fir	ABBA
	Balsam fir	ABBA	Red maple	ACRU
	Eastern hemlock	TSCA	Paper birch	BEPA
	Paper birch	BEPA	Quaking aspen	POTR5
	Quaking aspen	POTRT	Northern whitecedar	THOC2
	Sugar maple	ACSA3	White spruce	PIGL
	Yellow birch	BEAL2	Bunchberry dogwood	COCA13
			Lily-of-the-valley	COMA3
			Thimbleberry	RUPA
			Brackenfern	PTAQ
			Starflower	TRBO2
			Bedstraw	GALIU
			Large leaved aster	ASMA2
			Violet	VIOLA

Table 7.--Plant Communities on Selected Soils--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
196B:				
Tawas	Balsam fir	ABBA	Northern whitecedar	THOC2-1
	Balsam poplar	POBA2	Brackenfern	PTERI
	Black ash	FRNI	Quaking aspen	POTR5
	Eastern arborvitae	THOC2	Balsam poplar	POBA2
	Eastern hemlock	TSCA	Tamarack	LALA
	Red maple	ACRU	Eastern teaberry	GAPR2
			Sedge	CAREX
			Bluejoint	CACA4
			Speckled alder	ALINR
			Northern maidenhair	ADPE
			Purple pitcherplant	SAPU4
			American elm	ULAM

Table 8.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
2:					
Lupton.					
Tawas	Common ninebark, redosier dogwood, silky dogwood	Nannyberry, southern arrowwood	Black spruce, eastern arborvitae, green ash	---	---
3:					
Dawson.					
Loxley	Common ninebark, gray dogwood, silky dogwood	American cranberrybush, common lilac, nannyberry	Northern whitecedar	Siberian crabapple, Norway spruce, eastern white pine, green ash	Imperial Carolina poplar
6.					
Skandia-Burt					
10.					
Cathro-Sabattis					
13:					
Tawas	Common ninebark, redosier dogwood, silky dogwood	Nannyberry, southern arrowwood	Black spruce, eastern arborvitae, green ash	---	---
Deford	American cranberrybush, common ninebark, silky dogwood	Common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, Norway spruce	Eastern white pine, green ash	Imperial Carolina poplar
15B:					
Dawson.					
Croswell	Siberian peashrub, manyflower cotoneaster	Amur maple, common lilac	Eastern redcedar, jack pine, red pine	Eastern white pine	---
20E.					
Rock outcrop					
21G.					
Rock outcrop-Arcadian					

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
39A:					
Betsy Bay	Common ninebark	American cranberrybush, Amur maple, nannyberry	White spruce	Manchurian crabapple, Norway spruce, jack pine, eastern white pine, green ash	Imperial Carolina poplar
Burt.					
Deford	American cranberrybush, common ninebark, silky dogwood	Common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, Norway spruce	Eastern white pine, green ash	Imperial Carolina poplar
47A. Zeba-Jacobsville					
51C, 51E. Arcadian-Nipissing-Rock outcrop					
52C, 52E. Arcadian-Dishno-Rock outcrop					
53E, 53F. Arcadian-Michigamme-Rock outcrop					
55B. Chocolay					
100B:					
Waiska	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar	Austrian pine, jack pine, eastern white pine	---	---
100D:					
Waiska	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar	Austrian pine, jack pine, eastern white pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
102C:					
Waiska	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar	Austrian pine, jack pine, eastern white pine	---	---
Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
102E:					
Waiska	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar	Austrian pine, jack pine, eastern white pine	---	---
Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
102F:					
Waiska	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar	Austrian pine, jack pine, eastern white pine	---	---
Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
110B:					
Shelldrake.					
Croswell	Siberian peashrub, manyflower cotoneaster	Amur maple, common lilac	Eastern redcedar, jack pine, red pine	Eastern white pine	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
111B, 111D, 111E, 111F. Deer Park					
112C: Deer Park.					
Croswell	Siberian peashrub, manyflower cotoneaster	Amur maple, common lilac	Eastern redcedar, jack pine, red pine	Eastern white pine	---
113C: Rubicon	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
Croswell	Siberian peashrub, manyflower cotoneaster	Amur maple, common lilac	Eastern redcedar, jack pine, red pine	Eastern white pine	---
120B: Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
120D: Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
120E: Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
125A:					
Croswell	Siberian peashrub, manyflower cotoneaster	Amur maple, common lilac	Eastern redcedar, jack pine, red pine	Eastern white pine	---
Au Gres	Common ninebark	American cranberrybush, Amur maple, nannyberry	White spruce	Manchurian crabapple, Norway spruce, jack pine, eastern white pine, green ash	Imperial Carolina poplar
126B:					
Au Gres	Common ninebark	American cranberrybush, Amur maple, nannyberry	White spruce	Manchurian crabapple, Norway spruce, jack pine, eastern white pine, green ash	Imperial Carolina poplar
Deford	American cranberrybush, common ninebark, silky dogwood	Common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, Norway spruce	Eastern white pine, green ash	Imperial Carolina poplar
Croswell	Siberian peashrub, manyflower cotoneaster	Amur maple, common lilac	Eastern redcedar, jack pine, red pine	Eastern white pine	---
127A:					
Au Gres	Common ninebark	American cranberrybush, Amur maple, nannyberry	White spruce	Manchurian crabapple, Norway spruce, jack pine, eastern white pine, green ash	Imperial Carolina poplar
Kinross.					
130C:					
Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
130C:					
Alcona	American cranberrybush, Siberian peashrub, silky dogwood	Common lilac, nannyberry, southern arrowwood	Manchurian crabapple, white spruce, Norway spruce	Eastern white pine, red pine	Imperial Carolina poplar
130E:					
Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
Alcona	American cranberrybush, Siberian peashrub, silky dogwood	Common lilac, nannyberry, southern arrowwood	Manchurian crabapple, white spruce, Norway spruce	Eastern white pine, red pine	Imperial Carolina poplar
133C:					
Keweenaw	Manyflower cotoneaster	Siberian peashrub, common lilac, Amur maple	White spruce	Norway spruce, Siberian crabapple, eastern white pine, jack pine, red pine	Carolina poplar
Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
133E:					
Keweenaw	Manyflower cotoneaster	Siberian peashrub, common lilac, Amur maple	White spruce	Norway spruce, Siberian crabapple, eastern white pine, jack pine, red pine	Carolina poplar
Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
133F:					
Keweenaw	Manyflower cotoneaster	Siberian peashrub, common lilac, Amur maple	White spruce	Norway spruce, Siberian crabapple, eastern white pine, jack pine, red pine	Carolina poplar
Garlic	Siberian peashrub, barberry, common lilac, silver buffaloberry, smooth sumac, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
136B:					
Borgstrom.					
Ingalls	American cranberrybush, Roselow sargent crabapple, Siberian peashrub, common ninebark	Common lilac, northern whitecedar	Manchurian crabapple, white spruce, Norway spruce	Eastern white pine, green ash	---
142C:					
Wallace	Common lilac, common ninebark, silky dogwood	Amur privet, Siberian peashrub, nannyberry, northern whitecedar	Siberian crabapple, white spruce, red pine	Eastern white pine, green ash	---
Rubicon	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---
142F:					
Wallace	Common lilac, common ninebark, silky dogwood	Amur privet, Siberian peashrub, nannyberry, northern whitecedar	Siberian crabapple, white spruce, red pine	Eastern white pine, green ash	---
Rubicon	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry, staghorn sumac	Eastern redcedar	Jack pine, red pine, eastern white pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
155C:					
Montreal.					
Paavola.					
Waiska	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar	Austrian pine, jack pine, eastern white pine	---	---
155E:					
Montreal.					
Paavola.					
Waiska	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar	Austrian pine, jack pine, eastern white pine	---	---
158A:					
Arnheim.					
Sturgeon	Silky dogwood	American cranberrybush, nannyberry, northern whitecedar, southern arrowwood	White spruce	Manchurian crabapple, Norway spruce, eastern white pine, green ash, red maple	Imperial Carolina poplar
Pelkie	Common ninebark, silky dogwood	American cranberrybush, common lilac, northern whitecedar	White spruce	Norway spruce, Siberian crabapple, red pine, eastern white pine, green ash	Imperial Carolina poplar
161F:					
Trimountain.					
Lac La Belle.					
Waiska	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar	Austrian pine, jack pine, eastern white pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
162F. Trimountain-Lac La Belle-Michigamme					
166B. Gratiot-Sabattis					
173C, 173E. Montreal-Paavola-Dishno					
174B. Montreal-Dishno-Gratiot					
177A:					
Assinins	Sargent crabapple, silky dogwood	American cranberrybush, common lilac, nannyberry	Northern whitecedar, white spruce	Norway spruce, Siberian crabapple, eastern white pine, green ash, red maple	---
183C:					
Munising	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---
Abbaye	American cranberrybush, Siberian peashrub, common lilac, gray dogwood	Amur maple, Roselow sargent crabapple, northern whitecedar	White spruce, Norway spruce	Eastern white pine, green ash, red pine	---
Yalmer	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---
183E:					
Munising	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
183E:					
Abbaye	American cranberrybush, Siberian peashrub, common lilac, gray dogwood	Amur maple, Roselow sargent crabapple, northern whitecedar	White spruce, Norway spruce	Eastern white pine, green ash, red pine	---
Yalmer	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---
184C:					
Munising	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---
Yalmer	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---
184E:					
Munising	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---
Yalmer	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
185B:					
Munising	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---
Skanee	Roselow sargent crabapple, silky dogwood	American cranberrybush, common lilac, nannyberry, northern whitecedar	Siberian crabapple, white spruce, Norway spruce	Eastern white pine, green ash, red maple	---
185C:					
Munising	Common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, Amur maple, eastern arborvitae, nannyberry	White spruce, eastern redcedar, Norway spruce, eastern white pine	---	---
Skanee	Roselow sargent crabapple, silky dogwood	American cranberrybush, common lilac, nannyberry, northern whitecedar	Siberian crabapple, white spruce, Norway spruce	Eastern white pine, green ash, red maple	---
187A:					
Skanee	Roselow sargent crabapple, silky dogwood	American cranberrybush, common lilac, nannyberry, northern whitecedar	Siberian crabapple, white spruce, Norway spruce	Eastern white pine, green ash, red maple	---
Gay	Siberian peashrub, common ninebark, redosier dogwood, silky dogwood	American cranberrybush, common lilac, northern whitecedar	White spruce	Norway spruce, eastern white pine, green ash, red maple	---
192B. Nipissing-Arcadian-Rock outcrop					

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
194B:					
Copper Harbor-----------	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar----	Austrian pine, jack pine, eastern white pine	---	---
195B:					
Copper Harbor-----------	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar----	Austrian pine, jack pine, eastern white pine	---	---
Bete Grise--------------	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar----	Austrian pine, jack pine, eastern white pine	---	---
196B:					
Bete Grise--------------	Peking cotoneaster, Siberian peashrub, common lilac, silver buffaloberry	Eastern redcedar----	Austrian pine, jack pine, eastern white pine	---	---
Tawas-------------------	Common ninebark, redosier dogwood, silky dogwood	Nannyberry, southern arrowwood	Black spruce, eastern arborvitae, green ash	---	---
301. Udorthents-Udipsamments					
302. Histosols and Aquents					
303. Aquents and Dumps, stamp sand					
310. Dumps, mine					
311. Dumps, stamp sand					
312. Pits					

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
313. Dumps, sawdust					
W. Water					

Table 9a.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Camp areas: 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
2:						
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
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Tawas	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
3:						
Dawson	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
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
	Ponding	1.00	Ponding	1.00	Ponding	1.00
6:						
Skandia	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Burt	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	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
10:						
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
	Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Sabattis	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil 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
13:						
Tawas	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Deford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
15B:						
Dawson	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Croswell	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
					Slope	0.12
20E:						
Rock outcrop	Not rated		Not rated		Not rated	
21G:						
Rock outcrop	Not rated		Not rated		Not rated	
Arcadian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
39A:						
Betsy Bay	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Burt	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	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Deford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
47A:						
Zeba	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99
Jacobsville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
51C:						
Arcadian-----------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
					Slope	1.00
Nipissing----------	Not limited		Not limited		Very limited	
					Slope	1.00
					Depth to bedrock	0.01
Rock outcrop--------	Not rated		Not rated		Not rated	
51E:						
Arcadian-----------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
Nipissing----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Depth to bedrock	0.01
Rock outcrop--------	Not rated		Not rated		Not rated	
52C:						
Arcadian-----------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
					Slope	1.00
Dishno-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Slope	1.00
Rock outcrop--------	Not rated		Not rated		Not rated	
52E:						
Arcadian-----------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
Dishno-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop--------	Not rated		Not rated		Not rated	
53E:						
Arcadian-----------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
Michigamme----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Depth to bedrock	0.46
Rock outcrop--------	Not rated		Not rated		Not rated	

Table 9a.--Recreational Development--Continued

Map symbol and soil 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
53F:						
Arcadian------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Michigamme----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Depth to bedrock	0.46
Rock outcrop--------	Not rated		Not rated		Not rated	
55B:						
Chocolay------------	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	0.99
					Slope	0.88
100B:						
Waiska--------------	Not limited		Not limited		Somewhat limited	
					Slope	0.50
100D:						
Waiska--------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
102C:						
Waiska--------------	Not limited		Not limited		Very limited	
					Slope	1.00
Garlic--------------	Not limited		Not limited		Very limited	
					Slope	1.00
102E:						
Waiska--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Garlic--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
102F:						
Waiska--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Garlic--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
110B:						
Shelldrake----------	Not limited		Not limited		Somewhat limited	
					Slope	0.88
Croswell------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
					Depth to saturated zone	0.39
111B:						
Deer Park-----------	Not limited		Not limited		Somewhat limited	
					Slope	0.50

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
111D:						
Deer Park	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
111E:						
Deer Park	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
111F:						
Deer Park	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
112C:						
Deer Park	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.01	Slope	0.01	Slope	1.00
Croswell	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
					Depth to saturated zone	0.39
113C:						
Rubicon	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.01	Slope	0.01	Slope	1.00
Croswell	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
					Depth to saturated zone	0.39
120B:						
Garlic	Not limited		Not limited		Somewhat limited	
					Slope	0.50
120D:						
Garlic	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
120E:						
Garlic	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
125A:						
Croswell	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
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
					Slope	0.12
126B:						
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

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
126B:						
Deford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
Croswell	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.88
					Depth to saturated zone	0.39
127A:						
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
Kinross	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
130C:						
Garlic	Not limited		Not limited		Very limited	
					Slope	1.00
Alcona	Not limited		Not limited		Very limited	
					Slope	1.00
130E:						
Garlic	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Alcona	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
133C:						
Keweenaw	Not limited		Not limited		Very limited	
					Slope	1.00
Garlic	Not limited		Not limited		Very limited	
					Slope	1.00
133E:						
Keweenaw	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Garlic	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
133F:						
Keweenaw	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Garlic	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
136B:						
Borgstrom-----------	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
					Depth to saturated zone	0.39
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
	Slow water movement	0.04	Slow water movement	0.04	Slow water movement	0.04
142C:						
Wallace------------	Somewhat limited		Somewhat limited		Very limited	
	Depth to cemented pan	0.97	Depth to cemented pan	0.97	Slope	1.00
	Slope	0.01	Slope	0.01	Depth to cemented pan	0.97
Rubicon------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.01	Slope	0.01	Slope	1.00
142F:						
Wallace------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to cemented pan	0.97	Depth to cemented pan	0.97	Depth to cemented pan	0.97
Rubicon------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
155C:						
Montreal-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Slope	1.00
					Depth to cemented pan	0.71
Paavola------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Slope	1.00
					Depth to bedrock	0.84
Waiska-------------	Not limited		Not limited		Very limited	
					Slope	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
155E:						
Montreal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Slow water movement	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Slow water movement	1.00
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Depth to cemented pan	0.71
Paavola	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to cemented pan	0.84	Depth to cemented pan	0.84	Depth to cemented pan	0.84
Waiska	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
158A:						
Arnheim	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
Sturgeon	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	0.60
Pelkie	Very limited		Somewhat limited		Somewhat limited	
	Flooding	1.00	Depth to saturated zone	0.19	Flooding	0.60
	Depth to saturated zone	0.39			Depth to saturated zone	0.39
					Slope	0.12
161F:						
Trimountain	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
Lac La Belle	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to cemented pan	0.06	Depth to cemented pan	0.06	Depth to cemented pan	0.06
Waiska	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
162F:						
Trimountain	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00

Table 9a.--Recreational Development--Continued

Map symbol and soil 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
162F:						
Lac La Belle	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to cemented pan	0.06	Depth to cemented pan	0.06	Depth to cemented pan	0.06
Michigamme	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Depth to bedrock	0.46
166B:						
Gratiot	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
					Slope	0.12
Sabattis	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
173C:						
Montreal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Slope	1.00
					Depth to cemented pan	0.71
Paavola	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	0.84	Depth to cemented pan	0.84	Slope	1.00
					Depth to cemented pan	0.84
Dishno	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Slope	1.00
173E:						
Montreal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Slow water movement	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Slow water movement	1.00
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Depth to cemented pan	0.71
Paavola	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
					Depth to bedrock	0.84

Table 9a.--Recreational Development--Continued

Map symbol and soil 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
173E:						
Dishno	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
174B:						
Montreal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Slope	1.00
					Depth to cemented pan	0.71
Dishno	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Slope	1.00
Gratiot	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
177A:						
Assinins	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
183C:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
					Slope	1.00
Abbaye	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Slope	1.00
					Depth to bedrock	0.46
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	0.65	Depth to cemented pan	0.65	Slope	1.00
					Depth to cemented pan	0.64

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
183E:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to cemented pan	1.00
Abbaye	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
					Depth to bedrock	0.46
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to cemented pan	0.65	Depth to cemented pan	0.65	Depth to cemented pan	0.64
184C:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
					Slope	1.00
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	0.65	Depth to cemented pan	0.65	Slope	1.00
					Depth to cemented pan	0.64
184E:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to cemented pan	1.00
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to cemented pan	0.65	Depth to cemented pan	0.65	Depth to cemented pan	0.64
185B:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
					Slope	0.50

Table 9a.--Recreational Development--Continued

Map symbol and soil 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
185B:						
Skanee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
					Slope	0.12
185C:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slope	0.16	Slope	0.16	Slope	1.00
Skanee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
					Slope	0.88
187A:						
Skanee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
					Slope	0.12
Gay	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
192B:						
Nipissing	Not limited		Not limited		Somewhat limited	
					Slope	0.50
					Depth to bedrock	0.01
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
					Slope	0.50
Rock outcrop	Not rated		Not rated		Not rated	
194B:						
Copper Harbor	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
					Slope	0.12

Table 9a.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
195B:						
Copper Harbor-------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
					Slope	0.12
Bete Grise----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
196B:						
Bete Grise----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Tawas---------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
301:						
Udorthents----------	Not limited		Not limited		Very limited	
					Slope	1.00
					Large stones	0.01
Udipsamments--------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	1.00
302:						
Histosols-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Organic matter content	1.00
	Organic matter content	1.00	Organic matter content	1.00	Ponding	1.00
Aquents-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
					Gravel content	0.20
303:						
Aquents-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
					Gravel content	0.20
Dumps, stamp sand---	Not rated		Not rated		Not rated	
310:						
Dumps, mine---------	Not rated		Not rated		Not rated	

Table 9a.--Recreational Development--Continued

Map symbol and soil 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
311:						
Dumps, stamp sand---	Not rated		Not rated		Not rated	
312:						
Pits----------------	Not rated		Not rated		Not rated	
313:						
Dumps, sawdust------	Not rated		Not rated		Not rated	
W:						
Water---------------	Not rated		Not rated		Not rated	

Table 9b.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
2:				
Lupton	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Tawas	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
3:				
Dawson	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Loxley	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Too acid	1.00
			Ponding	1.00
6:				
Skandia	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Depth to bedrock	0.01
Burt	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to bedrock	1.00
	Ponding	1.00	Depth to saturated zone	1.00
			Ponding	1.00
			Droughty	0.91
10:				
Cathro	Very limited		Very limited	
	Depth to saturated zone	1.00	Organic matter content	1.00
	Organic matter content	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Sabattis	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
13:				
Tawas	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Deford	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
15B:				
Dawson	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Croswell	Not limited		Somewhat limited	
			Droughty	0.44
			Depth to saturated zone	0.19
20E:				
Rock outcrop	Not rated		Not rated	
21G:				
Rock outcrop	Not rated		Not rated	
Arcadian	Very limited		Very limited	
	Slope	1.00	Depth to bedrock	1.00
			Slope	1.00
			Droughty	1.00
39A:				
Betsy Bay	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Droughty	0.20
Burt	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to bedrock	1.00
	Ponding	1.00	Depth to saturated zone	1.00
			Ponding	1.00
			Droughty	0.91
Deford	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
47A:				
Zeba	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to bedrock	0.71

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Paths and trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
47A:				
Jacobsville----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Depth to bedrock	0.97
51C:				
Arcadian------------	Not limited		Very limited	
			Depth to bedrock	1.00
			Droughty	1.00
Nipissing-----------	Not limited		Somewhat limited	
			Droughty	0.42
			Depth to bedrock	0.01
Rock outcrop--------	Not rated		Not rated	
51E:				
Arcadian------------	Somewhat limited		Very limited	
	Slope	0.82	Depth to bedrock	1.00
			Slope	1.00
			Droughty	1.00
Nipissing-----------	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
			Droughty	0.42
			Depth to bedrock	0.01
Rock outcrop--------	Not rated		Not rated	
52C:				
Arcadian------------	Not limited		Very limited	
			Depth to bedrock	1.00
			Droughty	1.00
Dishno--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Rock outcrop--------	Not rated		Not rated	
52E:				
Arcadian------------	Somewhat limited		Very limited	
	Slope	0.82	Depth to bedrock	1.00
			Slope	1.00
			Droughty	1.00
Dishno--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.82	Slope	1.00
Rock outcrop--------	Not rated		Not rated	
53E:				
Arcadian------------	Somewhat limited		Very limited	
	Slope	0.82	Depth to bedrock	1.00
			Slope	1.00
			Droughty	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Paths and trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
53E:				
Michigamme	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
			Depth to bedrock	0.46
Rock outcrop	Not rated		Not rated	
53F:				
Arcadian	Very limited		Very limited	
	Slope	1.00	Depth to bedrock	1.00
			Slope	1.00
			Droughty	1.00
Michigamme	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Depth to bedrock	0.46
Rock outcrop	Not rated		Not rated	
55B:				
Chocolay	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to bedrock	0.99
			Droughty	0.99
100B:				
Waiska	Not limited		Very limited	
			Droughty	1.00
100D:				
Waiska	Not limited		Very limited	
			Droughty	1.00
			Slope	0.63
102C:				
Waiska	Not limited		Very limited	
			Droughty	1.00
Garlic	Not limited		Somewhat limited	
			Droughty	0.40
102E:				
Waiska	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
			Droughty	1.00
Garlic	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
			Droughty	0.40
102F:				
Waiska	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Droughty	1.00
Garlic	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Droughty	0.40

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
110B:				
Shelldrake	Not limited		Very limited	
			Droughty	1.00
Croswell	Not limited		Somewhat limited	
			Droughty	0.44
			Depth to saturated zone	0.19
111B:				
Deer Park	Not limited		Somewhat limited	
			Droughty	0.18
111D:				
Deer Park	Not limited		Somewhat limited	
			Slope	0.63
			Droughty	0.18
111E:				
Deer Park	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
			Droughty	0.18
111F:				
Deer Park	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Droughty	0.18
112C:				
Deer Park	Not limited		Somewhat limited	
			Droughty	0.18
			Slope	0.01
Croswell	Not limited		Somewhat limited	
			Droughty	0.44
			Depth to saturated zone	0.19
113C:				
Rubicon	Not limited		Somewhat limited	
			Droughty	0.45
			Slope	0.01
Croswell	Not limited		Somewhat limited	
			Droughty	0.44
			Depth to saturated zone	0.19
120B:				
Garlic	Not limited		Somewhat limited	
			Droughty	0.40
120D:				
Garlic	Not limited		Somewhat limited	
			Slope	0.63
			Droughty	0.40

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
120E:				
Garlic	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Droughty	0.40
125A:				
Croswell	Not limited		Somewhat limited	
			Droughty	0.44
			Depth to saturated zone	0.19
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
126B:				
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Deford	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
Croswell	Not limited		Somewhat limited	
			Droughty	0.44
			Depth to saturated zone	0.19
127A:				
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Kinross	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
130C:				
Garlic	Not limited		Somewhat limited	
			Droughty	0.40
Alcona	Not limited		Not limited	
130E:				
Garlic	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
			Droughty	0.40
Alcona	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
133C:				
Keweenaw	Not limited		Not limited	
Garlic	Not limited		Somewhat limited	
			Droughty	0.40

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Paths and trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
133E:				
Keweenaw	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
Garlic	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
			Droughty	0.40
133F:				
Keweenaw	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Garlic	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Droughty	0.40
136B:				
Borgstrom	Not limited		Very limited	
			Depth to cemented pan	1.00
			Droughty	1.00
			Depth to saturated zone	0.19
Ingalls	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
142C:				
Wallace	Not limited		Somewhat limited	
			Depth to cemented pan	0.97
			Droughty	0.45
			Slope	0.01
Rubicon	Not limited		Somewhat limited	
			Droughty	0.45
			Slope	0.01
142F:				
Wallace	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Depth to cemented pan	0.97
			Droughty	0.45
Rubicon	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Droughty	0.45
155C:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to cemented pan	0.71
			Droughty	0.15

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
155C:				
Paavola	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Droughty	1.00
			Depth to bedrock	0.84
Waiska	Not limited		Very limited	
			Droughty	1.00
155E:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.82	Slope	1.00
			Depth to cemented pan	0.71
			Droughty	0.15
Paavola	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.82	Slope	1.00
			Droughty	1.00
			Depth to cemented pan	0.84
Waiska	Somewhat limited		Very limited	
	Slope	0.82	Slope	1.00
			Droughty	1.00
158A:				
Arnheim	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	0.40		
Sturgeon	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Flooding	0.60
Pelkie	Not limited		Somewhat limited	
			Flooding	0.60
			Depth to saturated zone	0.19
161F:				
Trimountain	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Depth to cemented pan	1.00
			Droughty	0.51
Lac La Belle	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Droughty	1.00
			Depth to cemented pan	0.06

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
161F:				
Waiska	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Droughty	1.00
162F:				
Trimountain	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Depth to cemented pan	1.00
			Droughty	0.51
Lac La Belle	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Droughty	1.00
			Depth to cemented pan	0.06
Michigamme	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Depth to bedrock	0.46
166B:				
Gratiot	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Depth to saturated zone	1.00
			Droughty	1.00
Sabattis	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
173C:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to cemented pan	0.71
			Droughty	0.15
Paavola	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Droughty	1.00
			Depth to cemented pan	0.84
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
173E:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.82	Slope	1.00
			Depth to cemented pan	0.71
			Droughty	0.15
Paavola	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.82	Slope	1.00
			Droughty	1.00
			Depth to bedrock	0.84
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.82	Slope	1.00
174B:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to cemented pan	0.71
			Droughty	0.15
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Gratiot	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Depth to saturated zone	1.00
			Droughty	1.00
177A:				
Assinins	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
183C:				
Munising	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Depth to saturated zone	1.00
Abbaye	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to bedrock	0.46

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
183C:				
Yalmer	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to cemented pan	0.64
			Droughty	0.33
183E:				
Munising	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Slope	0.82	Depth to saturated zone	1.00
			Slope	1.00
Abbaye	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.82	Slope	1.00
			Depth to bedrock	0.46
Yalmer	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.82	Slope	1.00
			Depth to cemented pan	0.64
			Droughty	0.33
184C:				
Munising	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Depth to saturated zone	1.00
Yalmer	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to cemented pan	0.64
			Droughty	0.33
184E:				
Munising	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Slope	0.82	Depth to saturated zone	1.00
			Slope	1.00
Yalmer	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.82	Slope	1.00
			Depth to cemented pan	0.64
			Droughty	0.33

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
185B:				
Munising-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Depth to saturated zone	1.00
Skanee-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Depth to saturated zone	1.00
			Droughty	1.00
185C:				
Munising-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Depth to saturated zone	1.00
			Slope	0.16
Skanee-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Depth to saturated zone	1.00
			Droughty	1.00
187A:				
Skanee-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Depth to saturated zone	1.00
			Droughty	1.00
Gay----------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
192B:				
Nipissing----------	Not limited		Somewhat limited	
			Droughty	0.42
			Depth to bedrock	0.01
Arcadian-----------	Not limited		Very limited	
			Depth to bedrock	1.00
			Droughty	1.00
Rock outcrop--------	Not rated		Not rated	
194B:				
Copper Harbor-------	Not limited		Somewhat limited	
			Depth to saturated zone	0.19
			Droughty	0.07

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
195B:				
Copper Harbor-------	Not limited		Somewhat limited	
			Depth to saturated zone	0.19
			Droughty	0.07
Bete Grise----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Droughty	0.94
196B:				
Bete Grise----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Droughty	0.94
Tawas---------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
301:				
Udorthents----------	Not limited		Somewhat limited	
			Large stones	0.01
Udipsamments--------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
302:				
Histosols-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Organic matter content	1.00	Organic matter content	1.00
	Ponding	1.00	Depth to saturated zone	1.00
Aquents-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
303:				
Aquents-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
Dumps, stamp sand---	Not rated		Not rated	
310:				
Dumps, mine---------	Not rated		Not rated	
311:				
Dumps, stamp sand---	Not rated		Not rated	
312:				
Pits----------------	Not rated		Not rated	

Table 9b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
313:				
Dumps, sawdust	Not rated		Not rated	
W:				
Water	Not rated		Not rated	

Table 10.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
2:										
Lupton	Very poor.	Poor	Very poor.	Poor	Poor	Good	Good	Poor	Very poor.	Good.
Tawas	Very poor.	Poor	Very poor.	Poor	Poor	Good	Good	Poor	Very poor.	Good.
3:										
Dawson	Very poor.	Very poor.	Very poor.	Poor	Poor	Good	Good	Poor	Very poor.	Good.
Loxley	Very poor.	Very poor.	Very poor.	Poor	Poor	Good	Good	Poor	Poor	Very poor.
6:										
Skandia	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Very poor.	Good.
Burt	Very poor.	Very poor.	Poor	Poor	Poor	Good	Poor	Poor	Very poor.	Good.
10:										
Cathro	Very poor.	Poor	Very poor.	Poor	Poor	Good	Good	Poor	Very poor.	Good.
Sabattis	Very poor.	Poor	Very poor.	Poor	Poor	Good	Good	Poor	Very poor.	Good.
13:										
Tawas	Very poor.	Poor	Very poor.	Poor	Poor	Good	Good	Poor	Very poor.	Good.
Deford	Very poor.	Poor	Very poor.	Poor	Poor	Good	Good	Poor	Very poor.	Good.
15B:										
Dawson	Very poor.	Very poor.	Poor	Poor	Very poor.	Good	Good	Poor	Very poor.	Very poor.
Croswell	Poor	Poor	Good	Fair	Good	Poor	Very poor.	Fair	Fair	Very poor.
20E.										
Rock outcrop										
21G:										
Rock outcrop.										
Arcadian	Very poor.	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.
39A:										
Betsy Bay	Fair	Poor	Good	Fair	Good	Poor	Fair	Poor	Fair	Fair.
Burt	Very poor.	Very poor.	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
39A:										
Deford	Very poor.	Poor	Very poor.	Poor	Poor	Fair	Good	Poor	Very poor.	Fair.
47A:										
Zeba	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
Jacobsville	Very poor.	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
51C:										
Arcadian	Very poor.	Very poor.	Very poor.	Fair	Fair	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Nipissing	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Rock outcrop.										
51E:										
Arcadian	Very poor.	Very poor.	Very poor.	Fair	Fair	Very poor.	Very poor.	Very poor.	Good	Very poor.
Nipissing	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Rock outcrop.										
52C:										
Arcadian	Very poor.	Very poor.	Very poor.	Fair	Fair	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Dishno	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Rock outcrop.										
52E:										
Arcadian	Very poor.	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Dishno	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Rock outcrop.										
53E:										
Arcadian	Very poor.	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Michigamme	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Rock outcrop.										
53F:										
Arcadian	Very poor.	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
53F:										
Michigamme	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Rock outcrop.										
55B:										
Chocolay	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Fair.
100B:										
Waiska	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
100D:										
Waiska	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
102C:										
Waiska	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Garlic	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
102E:										
Waiska	Very poor.	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
Garlic	Very poor.	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
102F:										
Waiska	Very poor.	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
Garlic	Very poor.	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
110B:										
Shelldrake	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Croswell	Poor	Poor	Good	Fair	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.
111B:										
Deer Park	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
111D:										
Deer Park	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
111E:										
Deer Park	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.
111F:										
Deer Park	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
112C:										
Deer Park	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
Croswell	Poor	Poor	Good	Fair	Good	Very poor.	Very poor.	Fair	Fair	Poor.
113C:										
Rubicon	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Croswell	Poor	Poor	Good	Fair	Good	Very poor.	Very poor.	Fair	Fair	Very poor.
120B:										
Garlic	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
120D:										
Garlic	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
120E:										
Garlic	Very poor.	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
125A:										
Croswell	Poor	Poor	Good	Fair	Good	Poor	Very poor.	Fair	Fair	Very poor.
Au Gres	Poor	Poor	Good	Good	Fair	Poor	Poor	Fair	Fair	Poor.
126B:										
Au Gres	Poor	Poor	Good	Fair	Good	Poor	Poor	Fair	Fair	Poor.
Deford	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Very poor.	Fair.
Croswell	Poor	Poor	Fair	Fair	Good	Poor	Very poor.	Fair	Fair	Very poor.
127A:										
Au Gres	Poor	Poor	Good	Fair	Good	Poor	Poor	Fair	Fair	Poor.
Kinross	Very poor.	Poor	Very poor.	Poor	Poor	Good	Good	Poor	Very poor.	Good.
130C:										
Garlic	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
Alcona	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
130E:										
Garlic	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
Alcona	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
133C:										
Keweenaw----------	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Garlic------------	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
133E:										
Keweenaw----------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Garlic------------	Very poor.	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
133F:										
Keweenaw----------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Garlic------------	Very poor.	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
136B:										
Borgstrom---------	Poor	Poor	Good	Fair	Good	Poor	Very poor.	Fair	Fair	Very poor.
Ingalls-----------	Poor	Fair	Good	Fair	Good	Poor	Poor	Fair	Fair	Poor.
142C:										
Wallace-----------	Poor	Poor	Good	Fair	Good	Very poor.	Very poor.	Fair	Fair	Very poor.
Rubicon-----------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
142F:										
Wallace-----------	Very poor.	Poor	Good	Fair	Good	Very poor.	Very poor.	Fair	Fair	Very poor.
Rubicon-----------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
155C:										
Montreal----------	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Paavola-----------	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Waiska------------	Very poor.	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.
155E:										
Montreal----------	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Paavola-----------	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Waiska------------	Very poor.	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
158A:										
Arnheim	Very poor.	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Sturgeon	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
Pelkie	Poor	Poor	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
161F:										
Trimountain	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Lac La Belle	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Waiska	Very poor.	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.
162F:										
Trimountain	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Lac La Belle	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Michigamme	Very poor.	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.	Very poor.	Poor	Very poor.
166B:										
Gratiot	Very poor.	Poor	Very poor.	Fair	Good	Poor	Poor	Very poor.	Fair	Poor.
Sabattis	Very poor.	Poor	Very poor.	Poor	Poor	Poor	Poor	Poor	Very poor.	Poor.
173C:										
Montreal	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Paavola	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Dishno	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.
173E:										
Montreal	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Paavola	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Dishno	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.
174B:										
Montreal	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
174B:										
Dishno	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Gratiot	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Very poor.	Fair	Very poor.
177A:										
Assinins	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
183C:										
Munising	Poor	Fair	Very poor.	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Abbaye	Poor	Fair	Very poor.	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Yalmer	Poor	Fair	Very poor.	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
183E:										
Munising	Poor	Fair	Very poor.	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Abbaye	Poor	Fair	Very poor.	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Yalmer	Poor	Fair	Very poor.	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
184C:										
Munising	Poor	Fair	Very poor.	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Yalmer	Poor	Fair	Very poor.	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
184E:										
Munising	Poor	Fair	Very poor.	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Yalmer	Poor	Fair	Very poor.	Fair	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
185B:										
Munising	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Skanee	Poor	Poor	Good	Fair	Good	Poor	Very poor.	Fair	Fair	Poor.
185C:										
Munising	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Skanee	Poor	Fair	Good	Fair	Good	Poor	Poor	Fair	Fair	Poor.
187A:										
Skanee	Poor	Fair	Good	Fair	Good	Fair	Fair	Fair	Fair	Fair.

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
187A:										
Gay	Very poor.	Poor	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
192B:										
Nipissing	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
Arcadian	Very poor.	Very poor.	Very poor.	Fair	Fair	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Rock outcrop.										
194B:										
Copper Harbor	Poor	Poor	Poor	Fair	Good	Poor	Very poor.	Poor	Fair	Very poor.
195B:										
Copper Harbor	Poor	Poor	Poor	Fair	Good	Poor	Very poor.	Poor	Fair	Very poor.
Bete Grise	Poor	Poor	Poor	Fair	Good	Poor	Poor	Poor	Fair	Poor.
196B:										
Bete Grise	Poor	Poor	Poor	Fair	Good	Poor	Poor	Poor	Fair	Poor.
Tawas	Very poor.	Poor	Very poor.	Poor	Poor	Good	Good	Poor	Very poor.	Good.
301:										
Udorthents	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Udipsamments	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
302:										
Histosols	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Aquents	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
303:										
Aquents	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Dumps, stamp sand	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
310. Dumps, mine										
311:										
Dumps, stamp sand	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
312. Pits										

Table 10.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
313. Dumps, sawdust										
W. Water										

Table 11a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2:						
Lupton	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
	Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Tawas	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
	Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
	Ponding	1.00			Ponding	1.00
3:						
Dawson	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
	Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
	Ponding	1.00			Ponding	1.00
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
	Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
6:						
Skandia	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
	Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
	Ponding	1.00	Depth to hard bedrock	1.00	Ponding	1.00
	Depth to hard bedrock	0.01	Ponding	1.00	Depth to hard bedrock	0.01
Burt	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	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
10:						
Cathro	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
	Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
	Ponding	1.00			Ponding	1.00
Sabattis	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
13:						
Tawas	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
	Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
	Ponding	1.00			Ponding	1.00
Deford	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
15B:						
Dawson	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
	Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
	Ponding	1.00			Ponding	1.00
Croswell	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
20E:						
Rock outcrop	Not rated		Not rated		Not rated	
21G:						
Rock outcrop	Not rated		Not rated		Not rated	
Arcadian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
39A:						
Betsy Bay	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	0.93		

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
39A:						
Burt	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	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Deford	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
47A:						
Zeba	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	0.71	Depth to hard bedrock	1.00	Depth to hard bedrock	0.71
Jacobsville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to hard bedrock	1.00	Ponding	1.00
	Depth to hard bedrock	0.97	Ponding	1.00	Depth to hard bedrock	0.97
51C:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
					Slope	0.88
Nipissing	Somewhat limited		Very limited		Somewhat limited	
	Large stones	0.77	Depth to hard bedrock	1.00	Slope	0.88
	Depth to hard bedrock	0.01	Large stones	0.77	Large stones	0.77
					Depth to hard bedrock	0.01
Rock outcrop	Not rated		Not rated		Not rated	
51E:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
Nipissing	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
	Large stones	0.77	Slope	1.00	Large stones	0.77
	Depth to hard bedrock	0.01	Large stones	0.77	Depth to hard bedrock	0.01
Rock outcrop	Not rated		Not rated		Not rated	
52C:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
					Slope	0.88

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
52C:						
Dishno--------------	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	0.96	Slope	0.88
Rock outcrop--------	Not rated		Not rated		Not rated	
52E:						
Arcadian------------	Very limited		Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
Dishno--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to saturated zone	1.00
			Depth to hard bedrock	0.96		
Rock outcrop--------	Not rated		Not rated		Not rated	
53E:						
Arcadian------------	Very limited		Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
Michigamme----------	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
	Depth to hard bedrock	0.46	Slope	1.00	Depth to hard bedrock	0.46
Rock outcrop--------	Not rated		Not rated		Not rated	
53F:						
Arcadian------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Michigamme----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to hard bedrock	0.46	Depth to hard bedrock	1.00	Depth to hard bedrock	0.46
Rock outcrop--------	Not rated		Not rated		Not rated	
55B:						
Chocolay------------	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	0.99	Depth to hard bedrock	1.00	Depth to hard bedrock	0.99
					Slope	0.12
100B:						
Waiska--------------	Not limited		Not limited		Not limited	

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
100D:						
Waiska--------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
102C:						
Waiska--------------	Not limited		Not limited		Somewhat limited	
					Slope	0.88
Garlic--------------	Not limited		Not limited		Somewhat limited	
					Slope	0.88
102E:						
Waiska--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Garlic--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
102F:						
Waiska--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Garlic--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
110B:						
Shelldrake----------	Not limited		Not limited		Somewhat limited	
					Slope	0.12
Croswell------------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
111B:						
Deer Park-----------	Not limited		Not limited		Not limited	
111D:						
Deer Park-----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
111E:						
Deer Park-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
111F:						
Deer Park-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
112C:						
Deer Park-----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.01	Slope	0.01	Slope	1.00
Croswell------------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
113C:						
Rubicon-------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.01	Slope	0.01	Slope	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
113C:						
Croswell	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
120B:						
Garlic	Not limited		Not limited		Not limited	
120D:						
Garlic	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
120E:						
Garlic	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
125A:						
Croswell	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
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
126B:						
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
Deford	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Croswell	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
					Slope	0.12
127A:						
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
Kinross	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
130C:						
Garlic	Not limited		Not limited		Somewhat limited	
					Slope	0.88
Alcona	Not limited		Not limited		Somewhat limited	
					Slope	0.88

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
130E:						
Garlic---------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Alcona---------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
133C:						
Keweenaw------------	Not limited		Not limited		Somewhat limited	
					Slope	0.88
Garlic---------------	Not limited		Not limited		Somewhat limited	
					Slope	0.88
133E:						
Keweenaw------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Garlic---------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
133F:						
Keweenaw------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Garlic---------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
136B:						
Borgstrom-----------	Somewhat limited		Very limited		Somewhat limited	
	Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	0.39	Depth to thin cemented pan	1.00	Depth to saturated zone	0.39
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
142C:						
Wallace-------------	Somewhat limited		Very limited		Very limited	
	Depth to thick cemented pan	0.97	Depth to thick cemented pan	1.00	Slope	1.00
	Slope	0.01	Slope	0.01	Depth to thick cemented pan	0.97
Rubicon-------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.01	Slope	0.01	Slope	1.00
142F:						
Wallace-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00	Slope	1.00
	Depth to thick cemented pan	0.97	Slope	1.00	Depth to thick cemented pan	0.97
Rubicon-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
155C:						
Montreal	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 thick cemented pan	0.71	Depth to thick cemented pan	1.00	Slope	0.88
	Large stones	0.03	Large stones	0.03	Depth to thick cemented pan	0.71
					Large stones	0.03
Paavola	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	0.84	Depth to hard bedrock	1.00	Slope	0.88
					Depth to hard bedrock	0.84
Waiska	Not limited		Not limited		Somewhat limited	
					Slope	0.88
155E:						
Montreal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00
	Depth to thick cemented pan	0.71	Slope	1.00	Depth to thick cemented pan	0.71
	Large stones	0.03	Large stones	0.03	Large stones	0.03
Paavola	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to saturated zone	1.00
			Depth to thin cemented pan	0.84		
Waiska	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
158A:						
Arnheim	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Sturgeon	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
Pelkie	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
161F:						
Trimountain	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
161F:						
Lac La Belle	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to thick cemented pan	0.06	Depth to thick cemented pan	1.00	Depth to thick cemented pan	0.06
Waiska	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
162F:						
Trimountain	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
Lac La Belle	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to thick cemented pan	0.06	Depth to thick cemented pan	1.00	Depth to thick cemented pan	0.06
Michigamme	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to hard bedrock	0.46	Depth to hard bedrock	1.00	Depth to hard bedrock	0.46
166B:						
Gratiot	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Large stones	0.01	Large stones	0.01	Large stones	0.01
Sabattis	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
173C:						
Montreal	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 thick cemented pan	0.71	Depth to thick cemented pan	1.00	Slope	0.88
	Large stones	0.03	Large stones	0.03	Depth to thick cemented pan	0.71
					Large stones	0.03
Paavola	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to thin cemented pan	0.84	Slope	0.88
Dishno	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	0.96	Slope	0.88

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
173E:						
Montreal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00
	Depth to thick cemented pan	0.71	Slope	1.00	Depth to thick cemented pan	0.71
	Large stones	0.03	Large stones	0.03	Large stones	0.03
Paavola	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to hard bedrock	1.00	Depth to saturated zone	1.00
	Depth to hard bedrock	0.84	Slope	1.00	Depth to hard bedrock	0.84
Dishno	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to saturated zone	1.00
			Depth to hard bedrock	0.96		
174B:						
Montreal	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 thick cemented pan	0.71	Depth to thick cemented pan	1.00	Depth to thick cemented pan	0.71
	Large stones	0.03	Large stones	0.03	Slope	0.50
					Large stones	0.03
Dishno	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	0.96	Slope	0.50
Gratiot	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Large stones	0.01	Large stones	0.01	Large stones	0.01
177A:						
Assinins	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
183C:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
					Slope	0.88

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
183C:						
Abbaye	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	0.46	Depth to hard bedrock	1.00	Slope	0.88
					Depth to hard bedrock	0.46
Yalmer	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 thick cemented pan	0.65	Depth to thick cemented pan	1.00	Slope	0.88
					Depth to thick cemented pan	0.65
183E:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to thin cemented pan	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Slope	1.00	Depth to thin cemented pan	1.00
Abbaye	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to hard bedrock	1.00	Depth to saturated zone	1.00
	Depth to hard bedrock	0.46	Slope	1.00	Depth to hard bedrock	0.46
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00
	Depth to thick cemented pan	0.65	Slope	1.00	Depth to thick cemented pan	0.65
184C:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
					Slope	0.88
Yalmer	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 thick cemented pan	0.65	Depth to thick cemented pan	1.00	Slope	0.88
					Depth to thick cemented pan	0.65
184E:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to thin cemented pan	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Slope	1.00	Depth to thin cemented pan	1.00

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
184E:						
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00
	Depth to thick cemented pan	0.65	Slope	1.00	Depth to thick cemented pan	0.65
185B:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
Skanee	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 thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
185C:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Slope	0.16	Slope	0.16	Slope	1.00
Skanee	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 thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
					Slope	0.12
187A:						
Skanee	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 thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
Gay	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
192B:						
Nipissing	Somewhat limited		Very limited		Somewhat limited	
	Large stones	0.77	Depth to hard bedrock	1.00	Large stones	0.77
	Depth to hard bedrock	0.01	Large stones	0.77	Depth to hard bedrock	0.01
Arcadian	Very limited		Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rock outcrop	Not rated		Not rated		Not rated	

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
194B:						
Copper Harbor-------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
195B:						
Copper Harbor-------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Bete Grise----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
196B:						
Bete Grise----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Tawas---------------	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
	Organic matter content	1.00	Ponding	1.00	Organic matter content	1.00
	Ponding	1.00			Ponding	1.00
301:						
Udorthents----------	Not limited		Not limited		Somewhat limited	
					Slope	0.50
Udipsamments--------	Not limited		Not limited		Somewhat limited	
					Slope	0.50
302:						
Histosols-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
Aquents-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
303:						
Aquents-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Dumps, stamp sand---	Not rated		Not rated		Not rated	
310:						
Dumps, mine---------	Not rated		Not rated		Not rated	

Table 11a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
311:						
Dumps, stamp sand---	Not rated		Not rated		Not rated	
312:						
Pits----------------	Not rated		Not rated		Not rated	
313:						
Dumps, sawdust------	Not rated		Not rated		Not rated	
W:						
Water---------------	Not rated		Not rated		Not rated	

Table 11b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
2:				
Lupton	Very limited Depth to saturated zone Subsidence Frost action Ponding	 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Ponding Cutbanks cave	 1.00 1.00 1.00 0.10
Tawas	Very limited Depth to saturated zone Subsidence Frost action Ponding	 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Ponding Organic matter content	 1.00 1.00 1.00 1.00
3:				
Dawson	Very limited Depth to saturated zone Subsidence Frost action Ponding	 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Ponding Organic matter content	 1.00 1.00 1.00 1.00
Loxley	Very limited Depth to saturated zone Subsidence Frost action Ponding	 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Organic matter content Ponding Cutbanks cave	 1.00 1.00 1.00 0.10
6:				
Skandia	Not rated Not rated; Minerology class Depth to saturated zone Subsidence Frost action Ponding	 1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Depth to saturated zone Organic matter content Ponding Cutbanks cave	 1.00 1.00 1.00 1.00 0.10
Burt	Very limited Depth to hard bedrock Depth to saturated zone Ponding Frost action	 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Depth to saturated zone Ponding Cutbanks cave	 1.00 1.00 1.00 0.10

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
10:				
Cathro	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Ponding	1.00
	Frost action	1.00	Organic matter content	1.00
	Ponding	1.00	Cutbanks cave	0.10
Sabattis	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Cutbanks cave	0.10
13:				
Tawas	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Cutbanks cave	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Organic matter content	1.00
Deford	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
15B:				
Dawson	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Cutbanks cave	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Organic matter content	1.00
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks cave	1.00
20E:				
Rock outcrop	Not rated		Not rated	
21G:				
Rock outcrop	Not rated		Not rated	
Arcadian	Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
39A:				
Betsy Bay	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
			Depth to hard bedrock	0.93
Burt	Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
	Frost action	0.50	Cutbanks cave	0.10
Deford	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
47A:				
Zeba	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Frost action	1.00	Depth to saturated zone	1.00
	Depth to hard bedrock	0.71	Cutbanks cave	0.10
Jacobsville	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Frost action	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks cave	1.00
	Depth to hard bedrock	0.97	Ponding	1.00
51C:				
Arcadian	Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Frost action	0.50	Cutbanks cave	0.10
Nipissing	Somewhat limited		Very limited	
	Large stones	0.77	Depth to hard bedrock	1.00
	Frost action	0.50	Large stones	0.77
	Depth to hard bedrock	0.01	Cutbanks cave	0.10
Rock outcrop	Not rated		Not rated	
51E:				
Arcadian	Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
51E:				
Nipissing-----------	Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00
	Large stones	0.77	Slope	1.00
	Frost action	0.50	Large stones	0.77
	Depth to hard bedrock	0.01	Cutbanks cave	0.10
Rock outcrop--------	Not rated		Not rated	
52C:				
Arcadian------------	Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Frost action	0.50	Cutbanks cave	0.10
Dishno--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
			Depth to hard bedrock	0.96
Rock outcrop--------	Not rated		Not rated	
52E:				
Arcadian------------	Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10
Dishno--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Frost action	0.50	Slope	1.00
			Depth to hard bedrock	0.96
Rock outcrop--------	Not rated		Not rated	
53E:				
Arcadian------------	Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10
Michigamme----------	Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00
	Frost action	0.50	Cutbanks cave	1.00
	Depth to hard bedrock	0.46	Slope	1.00
Rock outcrop--------	Not rated		Not rated	

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
53F:				
Arcadian	Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10
Michigamme	Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00
	Frost action	0.50	Slope	1.00
	Depth to hard bedrock	0.46	Cutbanks cave	1.00
Rock outcrop	Not rated		Not rated	
55B:				
Chocolay	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Depth to hard bedrock	0.99	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	0.10
100B:				
Waiska	Not limited		Very limited	
			Cutbanks cave	1.00
100D:				
Waiska	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks cave	1.00
			Slope	0.63
102C:				
Waiska	Not limited		Very limited	
			Cutbanks cave	1.00
Garlic	Not limited		Very limited	
			Cutbanks cave	1.00
102E:				
Waiska	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
Garlic	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
102F:				
Waiska	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00
Garlic	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
110B:				
Shelldrake	Not rated		Very limited	
			Cutbanks cave	1.00
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks cave	1.00
111B:				
Deer Park	Not limited		Very limited	
			Cutbanks cave	1.00
111D:				
Deer Park	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks cave	1.00
			Slope	0.63
111E:				
Deer Park	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
111F:				
Deer Park	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00
112C:				
Deer Park	Somewhat limited		Very limited	
	Slope	0.01	Cutbanks cave	1.00
			Slope	0.01
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks cave	1.00
113C:				
Rubicon	Somewhat limited		Very limited	
	Slope	0.01	Cutbanks cave	1.00
			Slope	0.01
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks cave	1.00
120B:				
Garlic	Not limited		Very limited	
			Cutbanks cave	1.00
120D:				
Garlic	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks cave	1.00
			Slope	0.63

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
120E:				
Garlic	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00
125A:				
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks cave	1.00
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
126B:				
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
Deford	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks cave	1.00
127A:				
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
Kinross	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks cave	1.00
	Frost action	0.50	Ponding	1.00
130C:				
Garlic	Not limited		Very limited	
			Cutbanks cave	1.00
Alcona	Somewhat limited		Very limited	
	Frost action	0.50	Cutbanks cave	1.00
130E:				
Garlic	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
Alcona	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Frost action	0.50	Slope	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
133C:				
Keweenaw------------	Not limited		Very limited	
			Cutbanks cave	1.00
Garlic--------------	Not limited		Very limited	
			Cutbanks cave	1.00
133E:				
Keweenaw------------	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
Garlic--------------	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
133F:				
Keweenaw------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00
Garlic--------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00
136B:				
Borgstrom-----------	Somewhat limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Dense layer	0.50
Ingalls-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
142C:				
Wallace-------------	Somewhat limited		Very limited	
	Depth to thick cemented pan	0.97	Depth to thick cemented pan	1.00
	Slope	0.01	Cutbanks cave	1.00
			Dense layer	0.50
			Slope	0.01
Rubicon-------------	Somewhat limited		Very limited	
	Slope	0.01	Cutbanks cave	1.00
			Slope	0.01
142F:				
Wallace-------------	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	0.97	Cutbanks cave	1.00
			Slope	1.00
			Dense layer	0.50

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
142F:				
Rubicon	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
155C:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	0.71	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
	Large stones	0.03	Dense layer	0.50
			Large stones	0.03
Paavola	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Depth to hard bedrock	0.84	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Dense layer	0.50
Waiska	Not limited		Very limited	
			Cutbanks cave	1.00
155E:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Depth to thick cemented pan	0.71	Cutbanks cave	1.00
	Frost action	0.50	Slope	1.00
	Large stones	0.03	Dense layer	0.50
Paavola	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
			Depth to thin cemented pan	0.84
			Dense layer	0.50
Waiska	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
158A:				
Arnheim	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00
	Flooding	1.00	Flooding	0.80

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
158A:				
Sturgeon-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00
	Flooding	1.00	Flooding	0.60
Pelkie-------------	Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	0.19	Cutbanks cave	1.00
			Flooding	0.60
161F:				
Trimountain---------	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	1.00
			Dense layer	0.50
Lac La Belle--------	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	0.06	Slope	1.00
			Cutbanks cave	1.00
			Dense layer	0.50
Waiska-------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00
162F:				
Trimountain---------	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	1.00
			Dense layer	0.50
Lac La Belle--------	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	0.06	Slope	1.00
			Cutbanks cave	1.00
			Dense layer	0.50
Michigamme----------	Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00
	Frost action	0.50	Slope	1.00
	Depth to hard bedrock	0.46	Cutbanks cave	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
166B:				
Gratiot	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50
	Large stones	0.01	Cutbanks cave	0.10
			Large stones	0.01
Sabattis	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Cutbanks cave	0.10
173C:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	0.71	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
	Large stones	0.03	Dense layer	0.50
			Large stones	0.03
Paavola	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Depth to thin cemented pan	0.84
			Dense layer	0.50
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
			Depth to hard bedrock	0.96
173E:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Depth to thick cemented pan	0.71	Cutbanks cave	1.00
	Frost action	0.50	Slope	1.00
	Large stones	0.03	Dense layer	0.50
Paavola	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Depth to hard bedrock	0.84	Cutbanks cave	1.00
			Slope	1.00
			Dense layer	0.50

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
173E:				
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Frost action	0.50	Slope	1.00
			Depth to hard bedrock	0.96
174B:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	0.71	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
	Large stones	0.03	Dense layer	0.50
			Large stones	0.03
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
			Depth to hard bedrock	0.96
Gratiot	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50
	Large stones	0.01	Cutbanks cave	0.10
			Large stones	0.01
177A:				
Assinins	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00
183C:				
Munising	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
			Dense layer	0.50
Abbaye	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Frost action	0.50	Depth to saturated zone	1.00
	Depth to hard bedrock	0.46	Cutbanks cave	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
183C:				
Yalmer	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	0.65	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Dense layer	0.50
183E:				
Munising	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Frost action	0.50	Slope	1.00
			Dense layer	0.50
Abbaye	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
	Depth to hard bedrock	0.46	Slope	1.00
Yalmer	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Depth to thick cemented pan	0.65	Cutbanks cave	1.00
			Slope	1.00
			Dense layer	0.50
184C:				
Munising	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
			Dense layer	0.50
Yalmer	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Depth to thick cemented pan	0.65	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Dense layer	0.50

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
184E:				
Munising	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Frost action	0.50	Slope	1.00
			Dense layer	0.50
Yalmer	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Depth to thick cemented pan	0.65	Cutbanks cave	1.00
			Slope	1.00
			Dense layer	0.50
185B:				
Munising	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
			Dense layer	0.50
Skanee	Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50
			Cutbanks cave	0.10
185C:				
Munising	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00
	Slope	0.16	Dense layer	0.50
			Slope	0.16
Skanee	Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50
			Cutbanks cave	0.10

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
187A:				
Skanee	Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50
			Cutbanks cave	0.10
Gay	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Cutbanks cave	0.10
192B:				
Nipissing	Somewhat limited		Very limited	
	Large stones	0.77	Depth to hard bedrock	1.00
	Frost action	0.50	Large stones	0.77
	Depth to hard bedrock	0.01	Cutbanks cave	0.10
Arcadian	Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
	Frost action	0.50	Cutbanks cave	0.10
Rock outcrop	Not rated		Not rated	
194B:				
Copper Harbor	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks cave	1.00
195B:				
Copper Harbor	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks cave	1.00
Bete Grise	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
196B:				
Bete Grise	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
Tawas	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Cutbanks cave	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Organic matter content	1.00

Table 11b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
301:				
Udorthents----------	Not limited		Somewhat limited	
			Cutbanks cave	0.10
Udipsamments--------	Not limited		Very limited	
			Cutbanks cave	1.00
302:				
Histosols-----------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Organic matter content	1.00
	Frost action	1.00		
Aquents-------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00		
303:				
Aquents-------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00		
Dumps, stamp sand---	Not rated		Not rated	
310:				
Dumps, mine---------	Not rated		Not rated	
311:				
Dumps, stamp sand---	Not rated		Not rated	
312:				
Pits----------------	Not rated		Not rated	
313:				
Dumps, sawdust------	Not rated		Not rated	
W:				
Water---------------	Not rated		Not rated	

Table 12a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
2:				
Lupton	Very limited		Very limited	
	Depth to saturated zone	1.00	Organic matter content	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Ponding	1.00	Ponding	1.00
Tawas	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Organic matter content	1.00
3:				
Dawson	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Ponding	1.00
	Ponding	1.00	Organic matter content	1.00
Loxley	Very limited		Very limited	
	Depth to saturated zone	1.00	Organic matter content	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Ponding	1.00	Ponding	1.00
6:				
Skandia	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Organic matter content	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Seepage	1.00
			Ponding	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
6:				
Burt	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Ponding	1.00	Depth to saturated zone	1.00
			Ponding	1.00
			Organic matter content	1.00
10:				
Cathro	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Seepage	1.00
	Slow water movement	0.46	Ponding	1.00
			Organic matter content	1.00
Sabattis	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
	Slow water movement	0.72	Organic matter content	1.00
			Seepage	0.53
13:				
Tawas	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Organic matter content	1.00
Deford	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Organic matter content	1.00
15B:				
Dawson	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Ponding	1.00
	Ponding	1.00	Organic matter content	1.00
Croswell	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Slope	0.08

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
20E:				
Rock outcrop	Not rated		Not rated	
21G:				
Rock outcrop	Not rated		Not rated	
Arcadian	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
39A:				
Betsy Bay	Very limited		Very limited	
	Slow water movement	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to bedrock	0.98	Depth to hard bedrock	0.93
Burt	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Ponding	1.00	Depth to saturated zone	1.00
			Ponding	1.00
			Organic matter content	1.00
Deford	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Organic matter content	1.00
47A:				
Zeba	Very limited		Very limited	
	Slow water movement	1.00	Depth to hard bedrock	1.00
	Depth to bedrock	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
Jacobsville	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
	Ponding	1.00	Ponding	1.00
			Organic matter content	1.00
			Seepage	0.53
51C:				
Arcadian	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
			Slope	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
51C:				
Nipissing	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Filtering capacity	1.00	Seepage	1.00
	Large stones	0.77	Slope	1.00
			Large stones	1.00
Rock outcrop	Not rated		Not rated	
51E:				
Arcadian	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
Nipissing	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Large stones	0.77	Large stones	1.00
Rock outcrop	Not rated		Not rated	
52C:				
Arcadian	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
			Slope	1.00
Dishno	Very limited		Very limited	
	Slow water movement	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to bedrock	0.99	Slope	1.00
			Depth to hard bedrock	0.96
Rock outcrop	Not rated		Not rated	
52E:				
Arcadian	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
Dishno	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Depth to bedrock	0.99	Depth to hard bedrock	0.96
Rock outcrop	Not rated		Not rated	

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
53E:				
Arcadian------------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
Michigamme----------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
	Slow water movement	0.46	Seepage	0.53
			Large stones	0.36
Rock outcrop--------	Not rated		Not rated	
53F:				
Arcadian------------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
Michigamme----------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00	Slope	1.00
	Slow water movement	0.46	Seepage	0.53
			Large stones	0.36
Rock outcrop--------	Not rated		Not rated	
55B:				
Chocolay------------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
			Slope	0.68
100B:				
Waiska--------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	0.32
100D:				
Waiska--------------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	0.63		
102C:				
Waiska--------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
102C:				
Garlic	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00
102E:				
Waiska	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	1.00		
Garlic	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	1.00		
102F:				
Waiska	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Seepage	1.00		
Garlic	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Seepage	1.00		
110B:				
Shelldrake	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	0.68
Croswell	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Slope	0.32
111B:				
Deer Park	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	0.32
111D:				
Deer Park	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00
	Slope	0.63		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
111E:				
Deer Park-----------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	1.00		
111F:				
Deer Park-----------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Seepage	1.00		
112C:				
Deer Park-----------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00
	Slope	0.01		
Croswell------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Slope	0.32
113C:				
Rubicon-------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00
	Slope	0.01		
Croswell------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Slope	0.32
120B:				
Garlic--------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	0.32
120D:				
Garlic--------------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	0.63		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
120E:				
Garlic--------------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Seepage	1.00		
125A:				
Croswell------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00		
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
	Seepage	1.00	Slope	0.08
126B:				
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
	Seepage	1.00		
Deford--------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Organic matter content	1.00
Croswell------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Slope	0.68
127A:				
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
	Seepage	1.00		
Kinross-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Ponding	1.00
	Ponding	1.00	Organic matter content	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
130C:				
Garlic	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00
Alcona	Somewhat limited		Very limited	
	Slow water movement	0.46	Slope	1.00
			Seepage	0.53
130E:				
Garlic	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	1.00		
Alcona	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.46	Seepage	0.53
133C:				
Keweenaw	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	1.00
Garlic	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00
133E:				
Keweenaw	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Garlic	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	1.00		
133F:				
Keweenaw	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Garlic	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Seepage	1.00		

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
136B:				
Borgstrom	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
			Slope	0.32
Ingalls	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Slow water movement	1.00	Depth to saturated zone	1.00
142C:				
Wallace	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Seepage	1.00
	Slope	0.01	Slope	1.00
Rubicon	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00
	Slope	0.01		
142F:				
Wallace	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
Rubicon	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	1.00		
155C:				
Montreal	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Large stones	0.03	Slope	1.00
			Large stones	0.23
Paavola	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
			Slope	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
155C:				
Waiska	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00
155E:				
Montreal	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Large stones	0.03	Large stones	0.23
Paavola	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
			Depth to saturated zone	1.00
Waiska	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	1.00		
158A:				
Arnheim	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46		
Sturgeon	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46		
Pelkie	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
	Seepage	1.00	Slope	0.08

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
161F:				
Trimountain	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Lac La Belle	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Slope	1.00	Large stones	0.01
	Seepage	1.00		
Waiska	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Slope	1.00		
	Seepage	1.00		
162F:				
Trimountain	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Lac La Belle	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Slope	1.00	Large stones	0.01
	Seepage	1.00		
Michigamme	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	1.00		
	Slow water movement	0.46	Slope	1.00
			Seepage	0.53
			Large stones	0.36
166B:				
Gratiot	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Large stones	0.01	Large stones	0.30
			Slope	0.08
Sabattis	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
	Slow water movement	0.72	Organic matter content	1.00
			Seepage	0.53

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
173C:				
Montreal	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Large stones	0.03	Slope	1.00
			Large stones	0.23
Paavola	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
			Slope	1.00
Dishno	Very limited		Very limited	
	Slow water movement	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to bedrock	0.99	Slope	1.00
			Depth to hard bedrock	0.96
173E:				
Montreal	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Large stones content	0.03	Large stones content	0.23
Paavola	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Slope	1.00	Depth to saturated zone	1.00
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Depth to bedrock	0.99	Depth to saturated zone	1.00
	Slow water movement	0.46	Depth to hard bedrock	0.96

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
174B:				
Montreal	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Large stones	0.03	Slope	0.92
			Large stones	0.23
Dishno	Very limited		Very limited	
	Slow water movement	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to bedrock	0.99	Depth to hard bedrock	0.96
			Slope	0.92
Gratiot	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Large stones	0.01	Large stones	0.30
177A:				
Assinins	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Slow water movement	0.72	Depth to saturated zone	1.00
183C:				
Munising	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	1.00
			Seepage	0.53
Abbaye	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
	Slow water movement	0.72	Slope	1.00
			Seepage	0.53
Yalmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Slope	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
183E:				
Munising	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00
			Seepage	0.53
Abbaye	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Slow water movement	0.72	Seepage	0.53
Yalmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Filtering capacity	1.00	Seepage	1.00
	Slope	1.00	Depth to saturated zone	1.00
184C:				
Munising	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	1.00
			Seepage	0.53
Yalmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Slope	1.00
184E:				
Munising	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00
			Seepage	0.53
Yalmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Filtering capacity	1.00	Seepage	1.00
	Slope	1.00	Depth to saturated zone	1.00

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
185B:				
Munising-----------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Seepage	0.53
			Slope	0.32
Skanee-------------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Seepage	0.53
			Slope	0.08
185C:				
Munising-----------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.16	Slope	1.00
			Seepage	0.53
Skanee-------------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	0.68
			Seepage	0.53
187A:				
Skanee-------------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Seepage	0.53
			Slope	0.08
Gay----------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
	Slow water movement	0.46	Organic matter content	1.00
			Seepage	0.53
192B:				
Nipissing----------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Filtering capacity	1.00	Seepage	1.00
	Large stones	0.77	Large stones	1.00
			Slope	0.32

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
192B:				
Arcadian	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
			Slope	0.32
Rock outcrop	Not rated		Not rated	
194B:				
Copper Harbor	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Slope	0.08
195B:				
Copper Harbor	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Slope	0.08
Bete Grise	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00		
196B:				
Bete Grise	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Seepage	1.00		
Tawas	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Organic matter content	1.00
301:				
Udorthents	Somewhat limited		Somewhat limited	
	Slow water movement	1.00	Slope	0.92
			Seepage	0.01
Udipsamments	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	0.92

Table 12a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
302:				
Histosols-----------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Organic matter content	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
			Seepage	1.00
Aquents-------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00		
303:				
Aquents-------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00		
Dumps, stamp sand---	Not rated		Not rated	
310:				
Dumps, mine---------	Not rated		Not rated	
311:				
Dumps, stamp sand---	Not rated		Not rated	
312:				
Pits----------------	Not rated		Not rated	
313:				
Dumps, sawdust------	Not rated		Not rated	
W:				
Water---------------	Not rated		Not rated	

Table 12b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2:						
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
	Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
	Seepage	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00			Seepage	0.16
Tawas	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
3:						
Dawson	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
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
	Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
	Too acid	1.00	Ponding	1.00	Ponding	1.00
	Seepage	1.00			Seepage	0.22
	Ponding	1.00				
6:						
Skandia	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
	Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
	Seepage	1.00	Ponding	1.00		
Burt	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
	Too sandy	1.00	Ponding	1.00	Too sandy	1.00
	Ponding	1.00			Seepage	1.00
					Ponding	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil 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
10:						
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
	Ponding	1.00	Seepage	1.00	Ponding	1.00
			Ponding	1.00		
Sabattis	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
13:						
Tawas	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
Deford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
15B:						
Dawson	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
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	0.86
20E:						
Rock outcrop	Not rated		Not rated		Not rated	
21G:						
Rock outcrop	Not rated		Not rated		Not rated	
Arcadian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
					Gravel content	0.65
39A:						
Betsy Bay	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	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Depth to bedrock	0.94	Seepage	1.00
					Depth to bedrock	0.94

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil 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
39A:						
Burt	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
	Too sandy	1.00	Ponding	1.00	Too sandy	1.00
	Ponding	1.00			Seepage	1.00
					Ponding	1.00
Deford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
47A:						
Zeba	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
Jacobsville	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
	Ponding	1.00	Ponding	1.00	Ponding	1.00
51C:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
					Gravel content	0.65
Nipissing	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
	Large stones	0.77	Depth to bedrock	1.00	Seepage	1.00
					Large stones	0.77
					Gravel content	0.22
Rock outcrop	Not rated		Not rated		Not rated	
51E:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.65
Nipissing	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
	Slope	1.00	Depth to bedrock	1.00	Seepage	1.00
	Large stones	0.77	Slope	1.00	Slope	1.00
					Large stones	0.77
					Gravel content	0.22
Rock outcrop	Not rated		Not rated		Not rated	
52C:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
					Gravel content	0.65

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
52C:						
Dishno--------------	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	1.00	Seepage	1.00	Depth to bedrock	0.96
			Depth to bedrock	0.96		
Rock outcrop--------	Not rated		Not rated		Not rated	
52E:						
Arcadian------------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.65
Dishno--------------	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	1.00	Seepage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to bedrock	0.96
			Depth to bedrock	0.96		
Rock outcrop--------	Not rated		Not rated		Not rated	
53E:						
Arcadian------------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.65
Michigamme----------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop--------	Not rated		Not rated		Not rated	
53F:						
Arcadian------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
					Gravel content	0.65
Michigamme----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
Rock outcrop--------	Not rated		Not rated		Not rated	
55B:						
Chocolay------------	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	Seepage	1.00	Depth to saturated zone	1.00
			Depth to bedrock	1.00	Gravel content	0.11
100B:						
Waiska--------------	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	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil 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
100D:						
Waiska	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Gravel content	1.00
					Slope	0.63
102C:						
Waiska	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	1.00
Garlic	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
102E:						
Waiska	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
					Gravel content	1.00
Garlic	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
102F:						
Waiska	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	1.00
Garlic	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
110B:						
Shelldrake	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
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	Depth to saturated zone	0.86
	Too sandy	1.00				
111B:						
Deer Park	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
111D:						
Deer Park-----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
111E:						
Deer Park-----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
111F:						
Deer Park-----------	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
112C:						
Deer Park-----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.01	Seepage	1.00
	Slope	0.01			Slope	0.01
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	Depth to saturated zone	0.86
	Too sandy	1.00				
113C:						
Rubicon-------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.01	Seepage	1.00
	Slope	0.01			Slope	0.01
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	Depth to saturated zone	0.86
	Too sandy	1.00				
120B:						
Garlic--------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
120D:						
Garlic--------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
120E:						
Garlic--------------	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 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
125A:						
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	0.86
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
126B:						
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
Deford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
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	0.86
127A:						
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
Kinross	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
130C:						
Garlic	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Alcona	Somewhat limited		Not limited		Somewhat limited	
	Too sandy	0.50			Too sandy	0.50
130E:						
Garlic	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
130E:						
Alcona--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	0.50			Too sandy	0.50
133C:						
Keweenaw------------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Too sandy	0.50
	Too sandy	0.50			Seepage	0.22
Garlic--------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
133E:						
Keweenaw------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	0.50
	Too sandy	0.50			Seepage	0.22
Garlic--------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
133F:						
Keweenaw------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	0.50
	Too sandy	0.50			Seepage	0.22
Garlic--------------	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
136B:						
Borgstrom-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.86
	Depth to thin cemented pan	0.50			Seepage	0.22
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		
142C:						
Wallace-------------	Very limited		Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.01	Seepage	1.00
	Slope	0.01			Slope	0.01

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
142C:						
Rubicon-------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.01	Seepage	1.00
	Slope	0.01			Slope	0.01
142F:						
Wallace-------------	Very limited		Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
Rubicon-------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
155C:						
Montreal------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00			Large stones	0.03
	Large stones	0.03				
Paavola-------------	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	Seepage	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Depth to bedrock	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.38
Waiska--------------	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	1.00
155E:						
Montreal------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00			Large stones	0.03
	Large stones	0.03				
Paavola-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Seepage	1.00	Too sandy	1.00
	Depth to thin cemented pan	0.50	Slope	1.00	Seepage	1.00
					Slope	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
155E:						
Waiska	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
					Gravel content	1.00
158A:						
Arnheim	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00		
	Seepage	1.00				
Sturgeon	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	Seepage	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	0.50
	Too sandy	0.50				
Pelkie	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Seepage	1.00	Seepage	1.00	Too sandy	0.50
	Too sandy	0.50				
161F:						
Trimountain	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00				
Lac La Belle	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	0.50			Gravel content	1.00
					Too sandy	0.50
Waiska	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	1.00
162F:						
Trimountain	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00				

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil 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
162F:						
Lac La Belle--------	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	0.50			Gravel content	1.00
					Too sandy	0.50
Michigamme----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
166B:						
Gratiot-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Seepage	1.00	Gravel content	0.18
	Large stones	0.01			Large stones	0.01
Sabattis------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
173C:						
Montreal------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00			Large stones	0.03
	Large stones	0.03				
Paavola-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Seepage	1.00	Too sandy	1.00
					Seepage	1.00
					Gravel content	0.38
Dishno--------------	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	1.00	Seepage	1.00	Depth to bedrock	0.96
			Depth to bedrock	0.96		
173E:						
Montreal------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00			Large stones	0.03
	Large stones	0.03				

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
173E:						
Paavola	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	Seepage	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Depth to bedrock	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
Dishno	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	1.00	Seepage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to bedrock	0.96
			Depth to bedrock	0.96		
174B:						
Montreal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00			Large stones	0.03
	Large stones	0.03				
Dishno	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	1.00	Seepage	1.00	Depth to bedrock	0.96
			Depth to bedrock	0.96		
Gratiot	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Seepage	1.00	Gravel content	0.18
	Large stones	0.01			Large stones	0.01
177A:						
Assinins	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		
183C:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Abbaye	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

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil 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
183C:						
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	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
183E:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Slope	1.00	Slope	1.00
Abbaye	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
	Slope	1.00	Slope	1.00	Slope	1.00
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	0.50	Slope	1.00	Slope	1.00
					Too sandy	0.50
184C:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	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
184E:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to thin cemented pan	0.50	Slope	1.00	Slope	1.00

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil 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
184E:						
Yalmer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	0.50	Slope	1.00	Slope	1.00
					Too sandy	0.50
185B:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Skanee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
185C:						
Munising	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thin cemented pan	0.50	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.16	Slope	0.16	Slope	0.16
Skanee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
187A:						
Skanee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to thick cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Gay	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
192B:						
Nipissing	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
	Large stones	0.77	Depth to bedrock	1.00	Seepage	1.00
					Large stones	0.77
					Gravel content	0.22

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil 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
192B:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
					Gravel content	0.65
Rock outcrop	Not rated		Not rated		Not rated	
194B:						
Copper Harbor	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	Gravel content	1.00
	Too sandy	1.00			Depth to saturated zone	0.86
195B:						
Copper Harbor	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	Gravel content	1.00
	Too sandy	1.00			Depth to saturated zone	0.86
Bete Grise	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	1.00
196B:						
Bete Grise	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	1.00
Tawas	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
301:						
Udorthents	Not limited		Not limited		Not limited	
Udipsamments	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
302:						
Histosols	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
			Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00				
	Organic matter content	1.00	Seepage	1.00	Organic matter content	1.00
					Seepage	0.16

Table 12b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
302:						
Aquents-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
303:						
Aquents-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Dumps, stamp sand---	Not rated		Not rated		Not rated	
310:						
Dumps, mine---------	Not rated		Not rated		Not rated	
311:						
Dumps, stamp sand---	Not rated		Not rated		Not rated	
312:						
Pits----------------	Not rated		Not rated		Not rated	
313:						
Dumps, sawdust------	Not rated		Not rated		Not rated	
W:						
Water---------------	Not rated		Not rated		Not rated	

Table 13a.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2:						
Lupton	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
					Organic matter content	0.00
Tawas	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
	Organic matter content	0.00			Organic matter content	0.00
	Too acid	0.68				
3:						
Dawson	Fair		Poor		Poor	
	Too acid	0.50	Depth to wetness	0.00	Depth to wetness	0.00
	Organic matter content	0.50			Organic matter content	0.00
					Too acid	0.00
Loxley	Poor		Poor		Poor	
	Too acid	0.00	Depth to wetness	0.00	Depth to wetness	0.00
					Organic matter content	0.00
					Too acid	0.00
6:						
Skandia	Fair		Poor		Poor	
	Too acid	0.50	Depth to bedrock	0.00	Depth to wetness	0.00
	Depth to bedrock	0.99	Depth to wetness	0.00	Organic matter content	0.00
					Too acid	0.24
					Depth to bedrock	0.99
Burt	Poor		Poor		Poor	
	Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
	Droughty	0.00			Depth to bedrock	0.00
	Depth to bedrock	0.00				
	Organic matter content	0.12				
	Too acid	0.68				
10:						
Cathro	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
	Organic matter content	0.12			Organic matter content	0.00
	Too acid	0.50				
	Carbonate content	0.92				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10:						
Sabattis------------	Fair		Poor		Poor	
	Organic matter content	0.12	Depth to wetness	0.00	Depth to wetness	0.00
	Too acid	0.54	Cobble content	0.98	Hard to reclaim (rock fragments)	0.00
					Rock fragments	0.05
					Too acid	0.98
13:						
Tawas---------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
	Organic matter content	0.00			Organic matter content	0.00
	Too acid	0.68				
Deford--------------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.00
	Organic matter content	0.12			Too acid	0.88
	Too acid	0.50				
15B:						
Dawson--------------	Fair		Poor		Poor	
	Organic matter content	0.12	Depth to wetness	0.00	Depth to wetness	0.00
	Too acid	0.50			Organic matter content	0.00
					Too acid	0.00
Croswell------------	Poor		Fair		Poor	
	Too sandy	0.00	Depth to wetness	0.53	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.53
	Organic matter content	0.12			Too acid	0.88
	Too acid	0.50				
	Droughty	0.96				
20E:						
Rock outcrop--------	Not rated		Not rated		Not rated	
21G:						
Rock outcrop--------	Not rated		Not rated		Not rated	
Arcadian------------	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
	Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
	Too acid	0.50			Depth to bedrock	0.00
	Too sandy	0.78			Too sandy	0.78
39A:						
Betsy Bay-----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Wind erosion	0.00	Depth to bedrock	0.07	Depth to wetness	0.00
	Droughty	0.09	Content of stones	0.84		
	Too acid	0.50				
	Content of stones	0.71				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
39A:						
Burt	Poor		Poor		Poor	
	Too sandy	0.00	Depth to bedrock	0.00	Too sandy	0.00
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
	Droughty	0.00			Depth to bedrock	0.00
	Depth to bedrock	0.00				
	Organic matter content	0.12				
	Too acid	0.68				
Deford	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.00
	Organic matter content	0.12			Too acid	0.88
	Too acid	0.50				
47A:						
Zeba	Fair		Poor		Poor	
	Organic matter content	0.12	Depth to bedrock	0.00	Depth to wetness	0.00
	Depth to bedrock	0.29	Depth to wetness	0.00	Depth to bedrock	0.29
	Too acid	0.50			Rock fragments	0.88
	Droughty	0.59				
Jacobsville	Fair		Poor		Poor	
	Depth to bedrock	0.03	Depth to bedrock	0.00	Hard to reclaim (dense layer)	0.00
	Droughty	0.51	Depth to wetness	0.00	Depth to wetness	0.00
	Too acid	0.61			Depth to bedrock	0.03
	Organic matter content	0.88			Rock fragments	0.50
51C:						
Arcadian	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	Depth to bedrock	0.00			Depth to bedrock	0.00
	Too acid	0.50			Too sandy	0.78
	Too sandy	0.78				
Nipissing	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	Cobble content	0.29	Cobble content	0.00	Depth to bedrock	0.99
	Too acid	0.50				
	Depth to bedrock	0.99				
Rock outcrop	Not rated		Not rated		Not rated	
51E:						
Arcadian	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	Depth to bedrock	0.00	Slope	0.18	Depth to bedrock	0.00
	Too acid	0.50			Slope	0.00
	Too sandy	0.78			Too sandy	0.78
Nipissing	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	Cobble content	0.29	Cobble content	0.00	Slope	0.00
	Too acid	0.50	Slope	0.18	Depth to bedrock	0.99
	Depth to bedrock	0.99				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
51E:						
Rock outcrop	Not rated		Not rated		Not rated	
52C:						
Arcadian	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	Depth to bedrock	0.00			Depth to bedrock	0.00
	Too acid	0.50			Too sandy	0.78
	Too sandy	0.78				
Dishno	Fair		Poor		Poor	
	Too acid	0.50	Depth to wetness	0.00	Depth to wetness	0.00
			Depth to bedrock	0.04	Hard to reclaim (rock fragments)	0.50
					Too acid	0.50
					Rock fragments	0.50
Rock outcrop	Not rated		Not rated		Not rated	
52E:						
Arcadian	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	Depth to bedrock	0.00	Slope	0.18	Depth to bedrock	0.00
	Too acid	0.50			Slope	0.00
	Too sandy	0.78			Too sandy	0.78
Dishno	Fair		Poor		Poor	
	Too acid	0.50	Depth to wetness	0.00	Depth to wetness	0.00
			Depth to bedrock	0.04	Slope	0.00
			Slope	0.18	Too acid	0.50
					Rock fragments	0.50
					Hard to reclaim (rock fragments)	0.50
Rock outcrop	Not rated		Not rated		Not rated	
53E:						
Arcadian	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	Depth to bedrock	0.00	Slope	0.18	Depth to bedrock	0.00
	Too acid	0.50			Slope	0.00
	Too sandy	0.78			Too sandy	0.78
Michigamme	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to bedrock	0.00	Hard to reclaim (dense layer)	0.00
	Droughty	0.40	Slope	0.18		
	Too acid	0.50	Cobble content	0.70	Slope	0.00
	Depth to bedrock	0.54			Rock fragments	0.01
	Too sandy	0.78			Depth to bedrock	0.54
					Too sandy	0.78
					Too acid	0.88
Rock outcrop	Not rated		Not rated		Not rated	
53F:						
Arcadian	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
	Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
	Too acid	0.50			Depth to bedrock	0.00
	Too sandy	0.78			Too sandy	0.78

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
53F:						
Michigamme----------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to bedrock	0.00	Slope	0.00
	Droughty	0.40	Slope	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.50	Cobble content	0.70		
	Depth to bedrock	0.54			Rock fragments	0.01
	Too sandy	0.78			Depth to bedrock	0.54
					Too sandy	0.78
					Too acid	0.88
Rock outcrop--------	Not rated		Not rated		Not rated	
55B:						
Chocolay------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to bedrock	0.00	Depth to wetness	0.00
	Droughty	0.00	Depth to wetness	0.00	Rock fragments	0.00
	Depth to bedrock	0.01			Depth to bedrock	0.01
	Too acid	0.50			Too acid	0.76
	Too sandy	0.78			Too sandy	0.78
100B:						
Waiska--------------	Poor		Fair		Poor	
	Wind erosion	0.00	Content of stones	0.95	Hard to reclaim (rock fragments)	0.00
	Droughty	0.00				
	Too sandy	0.08			Rock fragments	0.00
	Organic matter content	0.12			Too sandy	0.08
	Too acid	0.26			Too acid	0.98
	Content of stones	0.91				
100D:						
Waiska--------------	Poor		Fair		Poor	
	Wind erosion	0.00	Content of stones	0.95	Hard to reclaim (rock fragments)	0.00
	Droughty	0.00				
	Too sandy	0.08			Rock fragments	0.00
	Organic matter content	0.12			Too sandy	0.08
					Slope	0.37
	Too acid	0.26			Too acid	0.98
	Content of stones	0.91				
102C:						
Waiska--------------	Poor		Fair		Poor	
	Wind erosion	0.00	Content of stones	0.95	Hard to reclaim (rock fragments)	0.00
	Droughty	0.00				
	Too sandy	0.08			Rock fragments	0.00
	Organic matter content	0.12			Too sandy	0.08
					Too acid	0.98
	Too acid	0.26				
	Content of stones	0.91				
Garlic--------------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
102E:						
Waiska	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.18	Hard to reclaim (rock fragments)	0.00
	Droughty	0.00	Content of stones	0.95	Rock fragments	0.00
	Too sandy	0.08			Slope	0.00
	Organic matter content	0.12			Too sandy	0.08
	Too acid	0.26			Too acid	0.98
	Content of stones	0.91				
Garlic	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.18	Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
102F:						
Waiska	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Droughty	0.00	Content of stones	0.95	Hard to reclaim (rock fragments)	0.00
	Too sandy	0.08			Rock fragments	0.00
	Organic matter content	0.12			Too sandy	0.08
	Too acid	0.26			Too acid	0.98
	Content of stones	0.91				
Garlic	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
110B:						
Shelldrake	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.24
	Droughty	0.01				
	Organic matter content	0.05				
	Too acid	0.50				
Croswell	Poor		Fair		Poor	
	Too sandy	0.00	Depth to wetness	0.53	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.53
	Organic matter content	0.12			Too acid	0.88
	Too acid	0.50				
	Droughty	0.96				
111B:						
Deer Park	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Organic matter content	0.12				
	Too acid	0.50				
	Droughty	0.99				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
111D:						
Deer Park	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Organic matter content	0.12				
	Too acid	0.50				
	Droughty	0.99				
111E:						
Deer Park	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.18	Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Organic matter content	0.12				
	Too acid	0.50				
	Droughty	0.99				
111F:						
Deer Park	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Organic matter content	0.12				
	Too acid	0.50				
	Droughty	0.99				
112C:						
Deer Park	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Organic matter content	0.12				
	Too acid	0.50				
	Droughty	0.99				
Croswell	Poor		Fair		Poor	
	Too sandy	0.00	Depth to wetness	0.53	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.53
	Organic matter content	0.12			Too acid	0.88
	Too acid	0.50				
	Droughty	0.96				
113C:						
Rubicon	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Too acid	0.08				
	Droughty	0.95				
Croswell	Poor		Fair		Poor	
	Too sandy	0.00	Depth to wetness	0.53	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.53
	Organic matter content	0.12			Too acid	0.88
	Too acid	0.50				
	Droughty	0.96				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
120B:						
Garlic--------------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
120D:						
Garlic--------------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
120E:						
Garlic--------------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
125A:						
Croswell------------	Poor		Fair		Poor	
	Too sandy	0.00	Depth to wetness	0.53	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.53
	Organic matter content	0.12			Too acid	0.88
	Too acid	0.50				
	Droughty	0.96				
Au Gres-------------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.00
	Organic matter content	0.12				
	Too acid	0.50				
126B:						
Au Gres-------------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.00
	Organic matter content	0.12				
	Too acid	0.50				
Deford--------------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.00
	Organic matter content	0.12			Too acid	0.88
	Too acid	0.50				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
126B:						
Croswell	Poor		Fair		Poor	
	Too sandy	0.00	Depth to wetness	0.53	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.53
	Organic matter content	0.12			Too acid	0.88
	Too acid	0.50				
	Droughty	0.96				
127A:						
Au Gres	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.00
	Organic matter content	0.12				
	Too acid	0.50				
Kinross	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Organic matter content	0.12			Depth to wetness	0.00
	Too acid	0.50				
130C:						
Garlic	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
Alcona	Fair		Good		Good	
	Too acid	0.08				
	Organic matter content	0.12				
130E:						
Garlic	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.18	Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
Alcona	Fair		Fair		Poor	
	Too acid	0.08	Slope	0.18	Slope	0.00
	Organic matter content	0.12				
133C:						
Keweenaw	Poor		Good		Fair	
	Wind erosion	0.00			Too sandy	0.22
	Too acid	0.08				
	Too sandy	0.22				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
133C:						
Garlic--------------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
133E:						
Keweenaw------------	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.18	Slope	0.00
	Too acid	0.08			Too sandy	0.22
	Too sandy	0.22				
Garlic--------------	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.18	Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
133F:						
Keweenaw------------	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too acid	0.08			Too sandy	0.22
	Too sandy	0.22				
Garlic--------------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.08				
	Organic matter content	0.12				
	Droughty	0.98				
136B:						
Borgstrom-----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to cemented pan	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00	Depth to wetness	0.53	Too sandy	0.00
	Depth to cemented pan	0.00			Depth to cemented pan	0.00
	Droughty	0.00			Too acid	0.32
	Too acid	0.50			Depth to wetness	0.53
Ingalls-------------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to wetness	0.00
	Organic matter content	0.12			Too acid	0.95
	Too acid	0.50				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
142C:						
Wallace	Poor		Poor		Poor	
	Too sandy	0.00	Depth to cemented pan	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00			Too sandy	0.00
	Droughty	0.00			Depth to cemented pan	0.03
	Depth to cemented pan	0.03			Too acid	0.50
	Too acid	0.08				
Rubicon	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Too acid	0.08				
	Droughty	0.95				
142F:						
Wallace	Poor		Poor		Poor	
	Too sandy	0.00	Depth to cemented pan	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00	Slope	0.00	Too sandy	0.00
	Droughty	0.00			Slope	0.00
	Depth to cemented pan	0.03			Depth to cemented pan	0.03
	Too acid	0.08			Too acid	0.50
Rubicon	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Too acid	0.08				
	Droughty	0.95				
155C:						
Montreal	Fair		Poor		Poor	
	Droughty	0.05	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.08	Depth to cemented pan	0.00	Depth to wetness	0.00
	Depth to cemented pan	0.29	Cobble content	0.50	Rock fragments	0.00
			Content of stones	0.99	Depth to cemented pan	0.29
					Too acid	0.76
Paavola	Poor		Poor		Poor	
	Too sandy	0.00	Depth to bedrock	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00	Depth to wetness	0.00	Too sandy	0.00
	Droughty	0.00			Rock fragments	0.00
	Depth to bedrock	0.16			Depth to wetness	0.00
	Too acid	0.46			Depth to bedrock	0.16
Waiska	Poor		Fair		Poor	
	Wind erosion	0.00	Content of stones	0.95	Hard to reclaim (rock fragments)	0.00
	Droughty	0.00			Rock fragments	0.00
	Too sandy	0.08			Too sandy	0.08
	Organic matter content	0.12			Too acid	0.98
	Too acid	0.26				
	Content of stones	0.91				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
155E:						
Montreal------------	Fair		Poor		Poor	
	Droughty	0.05	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.08	Depth to cemented pan	0.00	Depth to wetness	0.00
	Depth to cemented pan	0.29	Slope	0.18	Slope	0.00
			Cobble content	0.50	Rock fragments	0.00
			Content of stones	0.99	Depth to cemented pan	0.29
					Too acid	0.76
Paavola-------------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00	Depth to cemented pan	0.00	Too sandy	0.00
	Droughty	0.00	Slope	0.18	Slope	0.00
	Depth to cemented pan	0.16			Rock fragments	0.00
	Too acid	0.46			Depth to wetness	0.00
					Depth to cemented pan	0.16
Waiska--------------	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.18	Hard to reclaim (rock fragments)	0.00
	Droughty	0.00	Content of stones	0.95	Rock fragments	0.00
	Too sandy	0.08			Slope	0.00
	Organic matter content	0.12			Too sandy	0.08
	Too acid	0.26			Too acid	0.98
	Content of stones	0.91				
158A:						
Arnheim-------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
	Organic matter content	0.12				
	Water erosion	0.90				
	Too acid	0.97				
Sturgeon------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
	Too sandy	0.22			Too sandy	0.22
	Too acid	0.68				
	Organic matter content	0.88				
Pelkie--------------	Poor		Fair		Fair	
	Wind erosion	0.00	Depth to wetness	0.53	Too sandy	0.22
	Too sandy	0.22			Depth to wetness	0.53
	Too acid	0.68				
	Organic matter content	0.68				
161F:						
Trimountain---------	Poor		Poor		Poor	
	Too acid	0.00	Depth to cemented pan	0.00	Hard to reclaim (dense layer)	0.00
	Droughty	0.00	Slope	0.00	Slope	0.00
	Depth to cemented pan	0.00	Cobble content	0.96	Depth to cemented pan	0.00
					Rock fragments	0.12
					Too acid	0.76

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
161F:						
Lac La Belle--------	Poor		Poor		Poor	
	Droughty	0.00	Depth to cemented pan	0.00	Slope	0.00
	Too acid	0.08	Slope	0.00	Hard to reclaim (dense layer)	0.00
	Too sandy	0.22	Content of stones	0.67	Rock fragments	0.00
	Content of stones	0.66			Too sandy	0.22
	Depth to cemented pan	0.94			Too acid	0.50
					Depth to cemented pan	0.94
Waiska--------------	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Droughty	0.00	Content of stones	0.95	Hard to reclaim (rock fragments)	0.00
	Too sandy	0.08			Rock fragments	0.00
	Organic matter content	0.12			Too sandy	0.08
	Too acid	0.26			Too acid	0.98
	Content of stones	0.91				
162F:						
Trimountain---------	Poor		Poor		Poor	
	Too acid	0.00	Depth to cemented pan	0.00	Slope	0.00
	Droughty	0.00	Slope	0.00	Hard to reclaim (dense layer)	0.00
	Depth to cemented pan	0.00	Cobble content	0.96	Depth to cemented pan	0.00
					Rock fragments	0.12
					Too acid	0.76
Lac La Belle--------	Poor		Poor		Poor	
	Droughty	0.00	Depth to cemented pan	0.00	Slope	0.00
	Too acid	0.08	Slope	0.00	Hard to reclaim (dense layer)	0.00
	Too sandy	0.22	Content of stones	0.67	Rock fragments	0.00
	Content of stones	0.66			Too sandy	0.22
	Depth to cemented pan	0.94			Too acid	0.50
					Depth to cemented pan	0.94
Michigamme----------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to bedrock	0.00	Slope	0.00
	Droughty	0.40	Slope	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.50	Cobble content	0.70	Rock fragments	0.01
	Depth to bedrock	0.54			Depth to bedrock	0.54
	Too sandy	0.78			Too sandy	0.78
					Too acid	0.88
166B:						
Gratiot-------------	Poor		Poor		Poor	
	Droughty	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to wetness	0.00
	Too acid	0.50	Cobble content	0.97	Rock fragments	0.00
					Depth to cemented pan	0.00
					Too acid	0.76

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
166B:						
Sabattis------------	Fair		Poor		Poor	
	Organic matter content	0.12	Depth to wetness	0.00	Depth to wetness	0.00
	Too acid	0.54	Cobble content	0.98	Hard to reclaim (rock fragments)	0.00
					Rock fragments	0.05
					Too acid	0.98
173C:						
Montreal------------	Fair		Poor		Poor	
	Droughty	0.05	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.08	Depth to cemented pan	0.00	Depth to wetness	0.00
	Depth to cemented pan	0.29	Cobble content	0.50	Rock fragments	0.00
			Content of stones	0.99	Depth to cemented pan	0.29
					Too acid	0.76
Paavola-------------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00	Depth to cemented pan	0.00	Too sandy	0.00
	Droughty	0.00			Rock fragments	0.00
	Depth to cemented pan	0.16			Depth to wetness	0.00
	Too acid	0.46			Depth to cemented pan	0.16
Dishno--------------	Fair		Poor		Poor	
	Too acid	0.50	Depth to wetness	0.00	Depth to wetness	0.00
			Depth to bedrock	0.04	Hard to reclaim (rock fragments)	0.50
					Too acid	0.50
					Rock fragments	0.50
173E:						
Montreal------------	Fair		Poor		Poor	
	Droughty	0.05	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.08	Depth to cemented pan	0.00	Depth to wetness	0.00
	Depth to cemented pan	0.29	Slope	0.18	Slope	0.00
			Cobble content	0.50	Rock fragments	0.00
			Content of stones	0.99	Depth to cemented pan	0.29
					Too acid	0.76
Paavola-------------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to bedrock	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00	Depth to wetness	0.00	Too sandy	0.00
	Droughty	0.00	Slope	0.18	Slope	0.00
	Depth to bedrock	0.16			Rock fragments	0.00
	Too acid	0.46			Depth to wetness	0.00
					Depth to bedrock	0.16
Dishno--------------	Fair		Poor		Poor	
	Too acid	0.50	Depth to wetness	0.00	Depth to wetness	0.00
			Depth to bedrock	0.04	Slope	0.00
			Slope	0.18	Too acid	0.50
					Rock fragments	0.50
					Hard to reclaim (rock fragments)	0.50

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
174B:						
Montreal------------	Fair		Poor		Poor	
	Droughty	0.05	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.08	Depth to cemented pan	0.00	Depth to wetness	0.00
	Depth to cemented pan	0.29	Cobble content	0.50	Rock fragments	0.00
			Content of stones	0.99	Depth to cemented pan	0.29
					Too acid	0.76
Dishno--------------	Fair		Poor		Poor	
	Too acid	0.50	Depth to wetness	0.00	Depth to wetness	0.00
			Depth to bedrock	0.04	Hard to reclaim (rock fragments)	0.50
					Too acid	0.50
					Rock fragments	0.50
Gratiot-------------	Poor		Poor		Poor	
	Droughty	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to wetness	0.00
	Too acid	0.50	Cobble content	0.97	Rock fragments	0.00
					Depth to cemented pan	0.00
					Too acid	0.76
177A:						
Assinins------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Organic matter content	0.12			Depth to wetness	0.00
	Too acid	0.50				
183C:						
Munising------------	Poor		Poor		Poor	
	Depth to cemented pan	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.12	Depth to cemented pan	0.00	Depth to wetness	0.00
	Droughty	0.26			Depth to cemented pan	0.00
					Too acid	0.59
Abbaye--------------	Fair		Poor		Poor	
	Organic matter content	0.12	Depth to bedrock	0.00	Depth to wetness	0.00
	Droughty	0.26	Depth to wetness	0.00	Rock fragments	0.00
	Too acid	0.50			Depth to bedrock	0.54
	Depth to bedrock	0.54				
Yalmer--------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Droughty	0.01	Depth to cemented pan	0.00	Depth to wetness	0.00
	Too acid	0.01			Too sandy	0.22
	Too sandy	0.22			Depth to cemented pan	0.36
	Depth to cemented pan	0.36			Too acid	0.59
					Rock fragments	0.88

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
183E:						
Munising-----------	Poor		Poor		Poor	
	Depth to cemented pan	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.12	Depth to cemented pan	0.00	Depth to wetness	0.00
	Droughty	0.26	Slope	0.18	Slope	0.00
					Depth to cemented pan	0.00
					Too acid	0.59
Abbaye-------------	Fair		Poor		Poor	
	Organic matter content	0.12	Depth to bedrock	0.00	Depth to wetness	0.00
	Droughty	0.26	Depth to wetness	0.00	Rock fragments	0.00
	Too acid	0.50	Slope	0.18	Slope	0.00
	Depth to bedrock	0.54			Depth to bedrock	0.54
Yalmer-------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Droughty	0.01	Depth to cemented pan	0.00	Depth to wetness	0.00
	Too acid	0.01	Slope	0.18	Slope	0.00
	Too sandy	0.22			Too sandy	0.22
	Depth to cemented pan	0.36			Depth to cemented pan	0.36
					Too acid	0.59
					Rock fragments	0.88
184C:						
Munising-----------	Poor		Poor		Poor	
	Depth to cemented	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.12	Depth to cemented pan	0.00	Depth to wetness	0.00
	Droughty	0.26			Depth to cemented pan	0.00
					Too acid	0.59
Yalmer-------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Droughty	0.01	Depth to cemented pan	0.00	Depth to wetness	0.00
	Too acid	0.01			Too sandy	0.22
	Too sandy	0.22			Depth to cemented pan	0.36
	Depth to cemented pan	0.36			Too acid	0.59
					Rock fragments	0.88
184E:						
Munising-----------	Poor		Poor		Poor	
	Depth to cemented pan	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.12	Depth to cemented pan	0.00	Depth to wetness	0.00
	Droughty	0.26	Slope	0.18	Slope	0.00
					Depth to cemented pan	0.00
					Too acid	0.59

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
184E:						
Yalmer	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Droughty	0.01	Depth to cemented pan	0.00	Depth to wetness	0.00
	Too acid	0.01	Slope	0.18	Slope	0.00
	Too sandy	0.22			Too sandy	0.22
	Depth to cemented pan	0.36			Depth to cemented pan	0.36
					Too acid	0.59
					Rock fragments	0.88
185B:						
Munising	Poor		Poor		Poor	
	Depth to cemented pan	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.12	Depth to cemented pan	0.00	Depth to wetness	0.00
	Droughty	0.26			Depth to cemented pan	0.00
					Too acid	0.59
Skanee	Poor		Poor		Poor	
	Droughty	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to wetness	0.00
	Too acid	0.12			Depth to cemented pan	0.00
					Too acid	0.68
185C:						
Munising	Poor		Poor		Poor	
	Depth to cemented pan	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Too acid	0.12	Depth to cemented pan	0.00	Depth to wetness	0.00
	Droughty	0.26			Depth to cemented pan	0.00
					Too acid	0.59
					Slope	0.84
Skanee	Poor		Poor		Poor	
	Droughty	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to wetness	0.00
	Too acid	0.12			Depth to cemented pan	0.00
					Too acid	0.68
187A:						
Skanee	Poor		Poor		Poor	
	Droughty	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to wetness	0.00
	Too acid	0.12			Depth to cemented pan	0.00
					Too acid	0.68
Gay	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Hard to reclaim (dense layer)	0.00
	Organic matter content	0.12			Depth to wetness	0.00
	Too acid	0.50				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
192B:						
Nipissing-----------	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	Cobble content	0.29	Cobble content	0.00	Depth to bedrock	0.99
	Too acid	0.50				
	Depth to bedrock	0.99				
Arcadian------------	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
	Depth to bedrock	0.00			Depth to bedrock	0.00
	Too acid	0.50			Too sandy	0.78
	Too sandy	0.78				
Rock outcrop--------	Not rated		Not rated		Not rated	
194B:						
Copper Harbor-------	Poor		Fair		Poor	
	Too sandy	0.00	Depth to wetness	0.53	Too sandy	0.00
	Organic matter content	0.12			Hard to reclaim (rock fragments)	0.00
	Too acid	0.68			Rock fragments	0.00
	Droughty	0.90			Depth to wetness	0.53
195B:						
Copper Harbor-------	Poor		Fair		Poor	
	Too sandy	0.00	Depth to wetness	0.53	Too sandy	0.00
	Organic matter content	0.12			Hard to reclaim (rock fragments)	0.00
	Too acid	0.68			Rock fragments	0.00
	Droughty	0.90			Depth to wetness	0.53
Bete Grise----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Droughty	0.08			Depth to wetness	0.00
	Organic matter content	0.12			Rock fragments	0.00
	Too acid	0.32			Hard to reclaim (rock fragments)	0.00
196B:						
Bete Grise----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to wetness	0.00	Too sandy	0.00
	Droughty	0.08			Depth to wetness	0.00
	Organic matter content	0.12			Rock fragments	0.00
	Too acid	0.32			Hard to reclaim (rock fragments)	0.00
Tawas---------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
	Organic matter content	0.00			Organic matter content	0.00
	Too acid	0.68				
301:						
Udorthents----------	Fair		Good		Good	
	Organic matter content	0.12				
	Too acid	0.68				

Table 13a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
301:						
Udipsamments	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Organic matter content	0.12				
	Too acid	0.84				
	Droughty	0.96				
302:						
Histosols	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to wetness	0.00	Depth to wetness	0.00
	Too acid	0.68			Organic matter content	0.00
Aquents	Fair		Poor		Poor	
	Too acid	0.68	Depth to wetness	0.00	Depth to wetness	0.00
					Rock fragments	0.88
303:						
Aquents	Fair		Poor		Poor	
	Too acid	0.68	Depth to wetness	0.00	Depth to wetness	0.00
					Rock fragments	0.88
Dumps, stamp sand	Not rated		Not rated		Not rated	
310:						
Dumps, mine	Not rated		Not rated		Not rated	
311:						
Dumps, stamp sand	Not rated		Not rated		Not rated	
312:						
Pits	Not rated		Not rated		Not rated	
313:						
Dumps, sawdust	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	

Table 13b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
2:				
Lupton	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Tawas	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
3:				
Dawson	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.82
Loxley	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
6:				
Skandia	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Burt	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
10:				
Cathro	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Sabattis	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.15	Bottom layer	0.03
13:				
Tawas	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
Deford	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
15B:				
Dawson	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.82

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
15B:				
Croswell------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
20E:				
Rock outcrop--------	Not rated		Not rated	
21G:				
Rock outcrop--------	Not rated		Not rated	
Arcadian------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.03
39A:				
Betsy Bay-----------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.20
	Thickest layer	0.00	Bottom layer	0.38
Burt----------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
Deford--------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
47A:				
Zeba----------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Jacobsville---------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
51C:				
Arcadian------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.03
Nipissing-----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Rock outcrop--------	Not rated		Not rated	
51E:				
Arcadian------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.03
Nipissing-----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Rock outcrop--------	Not rated		Not rated	

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
52C:				
Arcadian------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.03
Dishno--------------	Fair		Fair	
	Thickest layer	0.15	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.10
Rock outcrop--------	Not rated		Not rated	
52E:				
Arcadian------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.03
Dishno--------------	Fair		Fair	
	Thickest layer	0.15	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.10
Rock outcrop--------	Not rated		Not rated	
53E:				
Arcadian------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.03
Michigamme----------	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.10
Rock outcrop--------	Not rated		Not rated	
53F:				
Arcadian------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.03
Michigamme----------	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.10
Rock outcrop--------	Not rated		Not rated	
55B:				
Chocolay------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
100B:				
Waiska--------------	Fair		Fair	
	Thickest layer	0.47	Thickest layer	0.47
	Bottom layer	0.71	Bottom layer	0.71
100D:				
Waiska--------------	Fair		Fair	
	Thickest layer	0.47	Thickest layer	0.47
	Bottom layer	0.71	Bottom layer	0.71

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
102C:				
Waiska	Fair		Fair	
	Thickest layer	0.47	Thickest layer	0.47
	Bottom layer	0.71	Bottom layer	0.71
Garlic	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
102E:				
Waiska	Fair		Fair	
	Thickest layer	0.47	Thickest layer	0.47
	Bottom layer	0.71	Bottom layer	0.71
Garlic	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
102F:				
Waiska	Fair		Fair	
	Thickest layer	0.47	Thickest layer	0.47
	Bottom layer	0.71	Bottom layer	0.71
Garlic	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
110B:				
Shelldrake	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.95
	Thickest layer	0.00	Thickest layer	0.95
Croswell	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
111B:				
Deer Park	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.27
	Thickest layer	0.00	Thickest layer	0.27
111D:				
Deer Park	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.27
	Thickest layer	0.00	Thickest layer	0.27
111E:				
Deer Park	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.27
	Thickest layer	0.00	Thickest layer	0.27
111F:				
Deer Park	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.27
	Thickest layer	0.00	Thickest layer	0.27
112C:				
Deer Park	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.27
	Thickest layer	0.00	Thickest layer	0.27

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
112C:				
Croswell	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
113C:				
Rubicon	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
Croswell	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
120B:				
Garlic	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
120D:				
Garlic	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
120E:				
Garlic	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
125A:				
Croswell	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
Au Gres	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
126B:				
Au Gres	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Deford	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
Croswell	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
127A:				
Au Gres	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Kinross	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
130C:				
Garlic--------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Alcona--------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.11
	Thickest layer	0.00	Bottom layer	0.27
130E:				
Garlic--------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Alcona--------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.11
	Thickest layer	0.00	Bottom layer	0.27
133C:				
Keweenaw------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.08
	Thickest layer	0.00	Thickest layer	0.08
Garlic--------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
133E:				
Keweenaw------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.08
	Thickest layer	0.00	Thickest layer	0.08
Garlic--------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
133F:				
Keweenaw------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.08
	Thickest layer	0.00	Thickest layer	0.08
Garlic--------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
136B:				
Borgstrom-----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Ingalls-------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.72
142C:				
Wallace-------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.19
	Thickest layer	0.00	Bottom layer	0.93

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
142C:				
Rubicon-------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
142F:				
Wallace-------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.19
	Thickest layer	0.00	Bottom layer	0.93
Rubicon-------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
155C:				
Montreal------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.14	Bottom layer	0.03
Paavola-------------	Fair		Fair	
	Thickest layer	0.06	Thickest layer	0.06
	Bottom layer	0.57	Bottom layer	0.10
Waiska--------------	Fair		Fair	
	Thickest layer	0.47	Thickest layer	0.47
	Bottom layer	0.71	Bottom layer	0.71
155E:				
Montreal------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.14	Bottom layer	0.03
Paavola-------------	Fair		Fair	
	Thickest layer	0.06	Thickest layer	0.06
	Bottom layer	0.64	Bottom layer	0.07
Waiska--------------	Fair		Fair	
	Thickest layer	0.47	Thickest layer	0.47
	Bottom layer	0.71	Bottom layer	0.71
158A:				
Arnheim-------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.01
	Thickest layer	0.00	Bottom layer	0.10
Sturgeon------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.10
	Thickest layer	0.00	Thickest layer	0.10
Pelkie--------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.03
161F:				
Trimountain---------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.15	Bottom layer	0.04

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
161F:				
Lac La Belle	Fair		Fair	
	Thickest layer	0.44	Bottom layer	0.08
	Bottom layer	0.51	Thickest layer	0.08
Waiska	Fair		Fair	
	Thickest layer	0.47	Thickest layer	0.47
	Bottom layer	0.71	Bottom layer	0.71
162F:				
Trimountain	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.15	Bottom layer	0.04
Lac La Belle	Fair		Fair	
	Thickest layer	0.44	Bottom layer	0.08
	Bottom layer	0.51	Thickest layer	0.08
Michigamme	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.10
166B:				
Gratiot	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.68	Bottom layer	0.01
Sabattis	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.15	Bottom layer	0.03
173C:				
Montreal	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.14	Bottom layer	0.03
Paavola	Fair		Fair	
	Thickest layer	0.06	Thickest layer	0.06
	Bottom layer	0.64	Bottom layer	0.07
Dishno	Fair		Fair	
	Thickest layer	0.15	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.10
173E:				
Montreal	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.14	Bottom layer	0.03
Paavola	Fair		Fair	
	Thickest layer	0.06	Thickest layer	0.06
	Bottom layer	0.57	Bottom layer	0.10
Dishno	Fair		Fair	
	Thickest layer	0.15	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.10

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
174B:				
Montreal------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.14	Bottom layer	0.03
Dishno--------------	Fair		Fair	
	Thickest layer	0.15	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.10
Gratiot-------------	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.68	Bottom layer	0.01
177A:				
Assinins------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.02
	Thickest layer	0.00	Thickest layer	0.02
183C:				
Munising------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
Abbaye--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Yalmer--------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.04
	Thickest layer	0.00	Thickest layer	0.10
183E:				
Munising------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
Abbaye--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Yalmer--------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.04
	Thickest layer	0.00	Thickest layer	0.10
184C:				
Munising------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
Yalmer--------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.04
	Thickest layer	0.00	Thickest layer	0.10
184E:				
Munising------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
Yalmer--------------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.04
	Thickest layer	0.00	Thickest layer	0.10

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
185B:				
Munising	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
Skanee	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
185C:				
Munising	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
Skanee	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
187A:				
Skanee	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
Gay	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.03
	Thickest layer	0.00	Thickest layer	0.03
192B:				
Nipissing	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Arcadian	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.57	Bottom layer	0.03
Rock outcrop	Not rated		Not rated	
194B:				
Copper Harbor	Fair		Fair	
	Thickest layer	0.30	Bottom layer	0.16
	Bottom layer	0.57	Thickest layer	0.30
195B:				
Copper Harbor	Fair		Fair	
	Thickest layer	0.30	Bottom layer	0.16
	Bottom layer	0.57	Thickest layer	0.30
Bete Grise	Fair		Fair	
	Bottom layer	0.29	Bottom layer	0.29
	Thickest layer	0.41	Thickest layer	0.38
196B:				
Bete Grise	Fair		Fair	
	Bottom layer	0.29	Bottom layer	0.29
	Thickest layer	0.41	Thickest layer	0.38
Tawas	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75

Table 13b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
301:				
Udorthents	Not rated		Not rated	
Udipsamments	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.89
	Thickest layer	0.00	Thickest layer	0.89
302:				
Histosols	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Aquents	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
303:				
Aquents	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Dumps, stamp sand	Not rated		Not rated	
310:				
Dumps, mine	Not rated		Not rated	
311:				
Dumps, stamp sand	Not rated		Not rated	
312:				
Pits	Not rated		Not rated	
313:				
Dumps, sawdust	Not rated		Not rated	
W:				
Water	Not rated		Not rated	

Table 14a.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
2:				
Lupton	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Organic matter content	1.00
			Frost action	1.00
			Ponding	1.00
			Cutbanks cave	1.00
Tawas	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Frost action	1.00
			Ponding	1.00
			Organic matter content	1.00
3:				
Dawson	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Frost action	1.00
			Ponding	1.00
			Organic matter content	1.00
Loxley	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Organic matter content	1.00
			Frost action	1.00
			Too acid	1.00
			Ponding	1.00
6:				
Skandia	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to saturated zone	1.00
			Organic matter content	1.00
			Frost action	1.00
			Ponding	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
6:				
Burt----------------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.91	Deep to water	1.00
			Ponding	1.00
			Cutbanks cave	1.00
10:				
Cathro--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Frost action	1.00
			Cutbanks cave	1.00
			Ponding	1.00
			Organic matter content	1.00
Sabattis------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.56	Frost action	1.00
	Cobble content	0.02	Cutbanks cave	1.00
			Ponding	1.00
13:				
Tawas---------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Frost action	1.00
			Ponding	1.00
			Organic matter content	1.00
Deford--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
	Slope	0.04		
			Cutbanks cave	1.00
15B:				
Dawson--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Frost action	1.00
			Ponding	1.00
			Organic matter content	1.00
Croswell------------	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Droughty	0.44	Cutbanks cave	1.00
	Slope	0.16		
20E:				
Rock outcrop--------	Not rated		Not rated	

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
21G:				
Rock outcrop	Not rated		Not rated	
Arcadian	Very limited		Very limited	
	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Slope	1.00
	Droughty	1.00	Deep to water	1.00
			Cutbanks cave	1.00
39A:				
Betsy Bay	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to bedrock	0.94	Cutbanks cave	1.00
	Droughty	0.20	Depth to bedrock	0.93
	Slope	0.04		
Burt	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.91	Deep to water	1.00
			Ponding	1.00
			Cutbanks cave	1.00
Deford	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
			Cutbanks cave	1.00
47A:				
Zeba	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.99	Frost action	1.00
			Cutbanks cave	1.00
	Water erosion	0.17		
	Slope	0.04		
Jacobsville	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Frost action	1.00
			Ponding	1.00
51C:				
Arcadian	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Droughty	1.00	Deep to water	1.00
	Slope	0.95	Cutbanks cave	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
51C:				
Nipissing----------	Very limited		Very limited	
	Cobble content	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Deep to water	1.00
	Slope	0.95	Cutbanks cave	1.00
	Droughty	0.42	Large stones	0.77
	Water erosion	0.17		
Rock outcrop--------	Not rated		Not rated	
51E:				
Arcadian-----------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	1.00	Deep to water	1.00
	Droughty	1.00	Slope	1.00
			Cutbanks cave	1.00
Nipissing----------	Very limited		Very limited	
	Cobble content	1.00	Depth to bedrock	1.00
	Slope	1.00	Deep to water	1.00
	Depth to bedrock	1.00	Slope	1.00
	Droughty	0.42	Cutbanks cave	1.00
	Water erosion	0.17	Large stones	0.77
Rock outcrop--------	Not rated		Not rated	
52C:				
Arcadian-----------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Droughty	1.00	Deep to water	1.00
	Slope	0.95	Cutbanks cave	1.00
Dishno-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to bedrock	0.96	Cutbanks cave	1.00
	Slope	0.95	Depth to bedrock	0.96
	Water erosion	0.89		
Rock outcrop--------	Not rated		Not rated	
52E:				
Arcadian-----------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	1.00	Deep to water	1.00
	Droughty	1.00	Slope	1.00
			Cutbanks cave	1.00
Dishno-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Depth to bedrock	0.96	Slope	1.00
	Water erosion	0.89	Depth to bedrock	0.96
Rock outcrop--------	Not rated		Not rated	

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
53E:				
Arcadian	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	1.00	Deep to water	1.00
	Droughty	1.00	Slope	1.00
			Cutbanks cave	1.00
Michigamme	Very limited		Very limited	
	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Cutbanks cave	1.00
	Water erosion	0.56	Deep to water	1.00
	Cobble content	0.30	Slope	1.00
Rock outcrop	Not rated		Not rated	
53F:				
Arcadian	Very limited		Very limited	
	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Slope	1.00
	Droughty	1.00	Deep to water	1.00
			Cutbanks cave	1.00
Michigamme	Very limited		Very limited	
	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Slope	1.00
	Water erosion	0.56	Cutbanks cave	1.00
	Cobble content	0.30	Deep to water	1.00
Rock outcrop	Not rated		Not rated	
55B:				
Chocolay	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to saturated zone	1.00
	Droughty	0.99	Cutbanks cave	1.00
	Slope	0.62		
100B:				
Waiska	Somewhat limited		Very limited	
	Droughty	1.00	Cutbanks cave	1.00
	Slope	0.36	Deep to water	1.00
100D:				
Waiska	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	1.00	Deep to water	1.00
			Slope	0.63
102C:				
Waiska	Somewhat limited		Very limited	
	Droughty	1.00	Cutbanks cave	1.00
	Slope	0.95	Deep to water	1.00
Garlic	Somewhat limited		Very limited	
	Slope	0.95	Cutbanks cave	1.00
	Droughty	0.40	Deep to water	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
102E:				
Waiska--------------	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	1.00	Deep to water	1.00
			Slope	1.00
Garlic--------------	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.40	Deep to water	1.00
			Slope	1.00
102F:				
Waiska--------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	1.00	Cutbanks cave	1.00
			Deep to water	1.00
Garlic--------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.40	Cutbanks cave	1.00
			Deep to water	1.00
110B:				
Shelldrake----------	Very limited		Very limited	
	Droughty	1.00	Cutbanks cave	1.00
	Slope	0.62	Deep to water	1.00
Croswell------------	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Droughty	0.44	Cutbanks cave	1.00
	Slope	0.36		
111B:				
Deer Park-----------	Somewhat limited		Very limited	
	Slope	0.36	Cutbanks cave	1.00
	Droughty	0.18	Deep to water	1.00
111D:				
Deer Park-----------	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.18	Deep to water	1.00
			Slope	0.63
111E:				
Deer Park-----------	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.18	Deep to water	1.00
			Slope	1.00
111F:				
Deer Park-----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.18	Cutbanks cave	1.00
			Deep to water	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
112C:				
Deer Park	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.18	Deep to water	1.00
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Droughty	0.44	Cutbanks cave	1.00
	Slope	0.36		
113C:				
Rubicon	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.45	Deep to water	1.00
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Droughty	0.44	Cutbanks cave	1.00
	Slope	0.36		
120B:				
Garlic	Somewhat limited		Very limited	
	Droughty	0.40	Cutbanks cave	1.00
	Slope	0.36	Deep to water	1.00
120D:				
Garlic	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.40	Deep to water	1.00
			Slope	0.63
120E:				
Garlic	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.40	Cutbanks cave	1.00
			Deep to water	1.00
125A:				
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Droughty	0.44	Cutbanks cave	1.00
	Slope	0.04		
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.16	Cutbanks cave	1.00
126B:				
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.04	Cutbanks cave	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
126B:				
Deford	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
			Cutbanks cave	1.00
Croswell	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Slope	0.62	Cutbanks cave	1.00
	Droughty	0.44		
127A:				
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.04	Cutbanks cave	1.00
Kinross	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Ponding	1.00
130C:				
Garlic	Somewhat limited		Very limited	
	Slope	0.95	Cutbanks cave	1.00
	Droughty	0.40	Deep to water	1.00
Alcona	Somewhat limited		Very limited	
	Slope	0.95	Cutbanks cave	1.00
	Water erosion	0.01	Deep to water	1.00
130E:				
Garlic	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.40	Deep to water	1.00
			Slope	1.00
Alcona	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Water erosion	0.01	Deep to water	1.00
			Slope	1.00
133C:				
Keweenaw	Somewhat limited		Very limited	
	Slope	0.95	Cutbanks cave	1.00
			Deep to water	1.00
Garlic	Somewhat limited		Very limited	
	Slope	0.95	Cutbanks cave	1.00
	Droughty	0.40	Deep to water	1.00
133E:				
Keweenaw	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Deep to water	1.00
			Slope	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
133E:				
Garlic	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.40	Deep to water	1.00
			Slope	1.00
133F:				
Keweenaw	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00
			Deep to water	1.00
Garlic	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.40	Cutbanks cave	1.00
			Deep to water	1.00
136B:				
Borgstrom	Very limited		Very limited	
	Droughty	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Slope	0.36	Cutbanks cave	1.00
			Dense layer	0.50
Ingalls	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.04	Cutbanks cave	1.00
	Restricted permeability	0.04		
142C:				
Wallace	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Droughty	0.45	Cutbanks cave	1.00
			Deep to water	1.00
			Dense layer	0.50
Rubicon	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.45	Deep to water	1.00
142F:				
Wallace	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Droughty	0.45	Cutbanks cave	1.00
			Deep to water	1.00
			Slope	1.00
			Dense layer	0.50
Rubicon	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.45	Deep to water	1.00
			Slope	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
155C:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Cutbanks cave	1.00
			Dense layer	0.50
	Slope	0.95	Large stones	0.03
Paavola	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	1.00	Cutbanks cave	1.00
	Slope	0.95	Dense layer	0.50
Waiska	Somewhat limited		Very limited	
	Droughty	1.00	Cutbanks cave	1.00
	Slope	0.95	Deep to water	1.00
155E:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Depth to cemented pan	1.00	Slope	1.00
			Dense layer	0.50
Paavola	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Slope	1.00
	Slope	1.00	Depth to thin cemented pan	0.84
	Droughty	1.00		
			Dense layer	0.50
Waiska	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
	Droughty	1.00	Deep to water	1.00
			Slope	1.00
158A:				
Arnheim	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Flooding	1.00
	Water erosion	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Frost action	1.00
Sturgeon	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.56	Cutbanks cave	1.00
			Frost action	1.00
			Flooding	0.60

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
158A:				
Pelkie	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Slope	0.16	Cutbanks cave	1.00
			Flooding	0.60
161F:				
Trimountain	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Depth to cemented pan	1.00	Slope	1.00
	Droughty	0.51	Cutbanks cave	1.00
	Cobble content	0.04	Deep to water	1.00
			Dense layer	0.50
Lac La Belle	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Depth to cemented pan	1.00	Slope	1.00
	Droughty	1.00	Cutbanks cave	1.00
			Deep to water	1.00
			Dense layer	0.50
Waiska	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	1.00	Cutbanks cave	1.00
			Deep to water	1.00
162F:				
Trimountain	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Depth to cemented pan	1.00	Slope	1.00
	Droughty	0.51	Cutbanks cave	1.00
	Cobble content	0.04	Deep to water	1.00
			Dense layer	0.50
Lac La Belle	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Depth to cemented pan	1.00	Slope	1.00
	Droughty	1.00	Cutbanks cave	1.00
			Deep to water	1.00
			Dense layer	0.50
Michigamme	Very limited		Very limited	
	Slope	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Slope	1.00
	Water erosion	0.56	Cutbanks cave	1.00
	Cobble content	0.30	Deep to water	1.00
166B:				
Gratiot	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Droughty	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Frost action	1.00
	Slope	0.16	Cutbanks cave	1.00
	Cobble content	0.03	Dense layer	0.50

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Grassed waterways: Value	Drainage: Rating class and limiting features	Drainage: Value
166B:				
Sabattis	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.56	Frost action	1.00
	Cobble content	0.02	Cutbanks cave	1.00
			Ponding	1.00
173C:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Cutbanks cave	1.00
			Dense layer	0.50
	Slope	0.95	Large stones	0.03
Paavola	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Depth to thin cemented pan	0.84
	Droughty	1.00		
	Slope	0.95	Dense layer	0.50
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to bedrock	0.96	Cutbanks cave	1.00
	Slope	0.95	Depth to bedrock	0.96
	Water erosion	0.89		
173E:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Depth to cemented pan	1.00	Slope	1.00
			Dense layer	0.50
Paavola	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Droughty	1.00	Slope	1.00
			Dense layer	0.50
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Depth to bedrock	0.96	Slope	1.00
	Water erosion	0.89	Depth to bedrock	0.96

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
174B:				
Montreal	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thick cemented pan	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Cutbanks cave	1.00
			Dense layer	0.50
	Slope	0.83	Large stones	0.03
Dishno	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to bedrock	0.96	Cutbanks cave	1.00
	Water erosion	0.89	Depth to bedrock	0.96
	Slope	0.83		
Gratiot	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Droughty	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00		
			Frost action	1.00
	Slope	0.04	Cutbanks cave	1.00
	Cobble content	0.03	Dense layer	0.50
177A:				
Assinins	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.04	Cutbanks cave	1.00
			Frost action	1.00
183C:				
Munising	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Depth to cemented pan	1.00	Depth to saturated zone	1.00
	Slope	0.95	Cutbanks cave	1.00
	Water erosion	0.17	Dense layer	0.50
Abbaye	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to bedrock	1.00
			Depth to saturated zone	1.00
	Depth to bedrock	1.00		
	Slope	0.95	Cutbanks cave	1.00
	Water erosion	0.17		
Yalmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.95	Cutbanks cave	1.00
	Droughty	0.33	Dense layer	0.50

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
183E:				
Munising-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Cutbanks cave	1.00
	Water erosion	0.17	Slope	1.00
			Dense layer	0.50
Abbaye-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to bedrock	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Depth to bedrock	1.00	Cutbanks cave	1.00
	Water erosion	0.17	Slope	1.00
Yalmer-------------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.33	Slope	1.00
			Dense layer	0.50
184C:				
Munising-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Depth to cemented pan	1.00	Depth to saturated zone	1.00
	Slope	0.95	Cutbanks cave	1.00
	Water erosion	0.17	Dense layer	0.50
Yalmer-------------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.95	Cutbanks cave	1.00
	Droughty	0.33	Dense layer	0.50
184E:				
Munising-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Cutbanks cave	1.00
	Water erosion	0.17	Slope	1.00
			Dense layer	0.50
Yalmer-------------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Droughty	0.33	Slope	1.00
			Dense layer	0.50

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
185B:				
Munising------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Depth to cemented pan	1.00	Depth to saturated zone	1.00
	Slope	0.36	Cutbanks cave	1.00
	Water erosion	0.17	Dense layer	0.50
Skanee--------------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Frost action	1.00
			Cutbanks cave	1.00
	Droughty	1.00	Dense layer	0.50
185C:				
Munising------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Depth to cemented pan	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks cave	1.00
	Water erosion	0.17	Dense layer	0.50
			Slope	0.16
Skanee--------------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Frost action	1.00
			Cutbanks cave	1.00
	Droughty	1.00	Dense layer	0.50
187A:				
Skanee--------------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to thick cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Frost action	1.00
			Cutbanks cave	1.00
	Droughty	1.00	Dense layer	0.50
Gay-----------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.17	Frost action	1.00
			Cutbanks cave	1.00
			Ponding	1.00
192B:				
Nipissing-----------	Very limited		Very limited	
	Cobble content	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Deep to water	1.00
	Droughty	0.42	Cutbanks cave	1.00
	Slope	0.36	Large stones	0.77
	Water erosion	0.17		

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
192B:				
Arcadian	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Droughty	1.00	Deep to water	1.00
	Slope	0.36	Cutbanks cave	1.00
Rock outcrop	Not rated		Not rated	
194B:				
Copper Harbor	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Slope	0.16	Cutbanks cave	1.00
	Droughty	0.07		
195B:				
Copper Harbor	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Slope	0.16	Cutbanks cave	1.00
	Droughty	0.07		
Bete Grise	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.94	Cutbanks cave	1.00
	Slope	0.04		
196B:				
Bete Grise	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.94	Cutbanks cave	1.00
	Slope	0.04		
Tawas	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks cave	1.00
			Frost action	1.00
			Ponding	1.00
			Organic matter content	1.00
301:				
Udorthents	Slightly limited		Very limited	
	Water erosion	0.17	Deep to water	1.00
Udipsamments	Somewhat limited		Very limited	
	Slope	0.83	Cutbanks cave	1.00
	Droughty	0.69	Deep to water	1.00
302:				
Histosols	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
			Organic matter content	1.00
			Frost action	1.00
			Cutbanks cave	1.00

Table 14a.--Water Management--Continued

Map symbol and soil name	Grassed waterways: Rating class and limiting features	Value	Drainage: Rating class and limiting features	Value
302:				
Aquents	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Water erosion	0.89	Depth to saturated zone	1.00
			Frost action	1.00
			Cutbanks cave	1.00
303:				
Aquents	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Water erosion	0.89	Depth to saturated zone	1.00
			Frost action	1.00
			Cutbanks cave	1.00
Dumps, stamp sand	Not rated		Not rated	
310:				
Dumps, mine	Not rated		Not rated	
311:				
Dumps, stamp sand	Not rated		Not rated	
312:				
Pits	Not rated		Not rated	
313:				
Dumps, sawdust	Not rated		Not rated	
W:				
Water	Not rated		Not rated	

Table 14b.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. "Not rated" indicates that data are not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2:						
Lupton	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Organic matter content	1.00	Cutbanks cave	0.10
			Depth to saturated zone	1.00		
			Piping	1.00		
			Ponding	1.00		
Tawas	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Ponding	1.00		
			Seepage	0.75		
3:						
Dawson	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Ponding	1.00		
			Seepage	0.82		
Loxley	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Organic matter content	1.00	Cutbanks cave	0.10
			Depth to saturated zone	1.00		
			Piping	1.00		
			Ponding	1.00		
6:						
Skandia	Very limited		Very limited		Very limited	
	Seepage	1.00	Organic matter content	1.00	Depth to hard bedrock	1.00
	Depth to bedrock	0.56				
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	1.00		
			Ponding	1.00		
			Thin layer	0.56		
Burt	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
			Thin layer	1.00	Cutbanks cave	0.10
			Ponding	1.00		
			Seepage	0.75		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10:						
Cathro	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	1.00		
			Ponding	1.00		
Sabattis	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Ponding	1.00		
			Seepage	0.03		
13:						
Tawas	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Ponding	1.00		
			Seepage	0.75		
Deford	Very limited		Very limited		Very limited	
	Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
			Depth to saturated zone	1.00		
			Seepage	0.75		
15B:						
Dawson	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Ponding	1.00		
			Seepage	0.82		
Croswell	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
					Depth to saturated zone	0.01
			Seepage	0.82		
20E:						
Rock outcrop	Not rated		Not rated		Not rated	
21G:						
Rock outcrop	Not rated		Not rated		Not rated	
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
	Slope	1.00	Seepage	0.03		
39A:						
Betsy Bay	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
	Depth to bedrock	0.33			Depth to hard bedrock	0.93
			Seepage	0.38		
			Thin layer	0.34		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
39A:						
Burt	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
			Thin layer	1.00	Cutbanks cave	0.10
			Ponding	1.00		
			Seepage	0.75		
Deford	Very limited		Very limited		Very limited	
	Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
			Depth to saturated zone	1.00		
			Seepage	0.75		
47A:						
Zeba	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.93	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Seepage	0.72	Thin layer	0.93	Slow refill	0.28
			Seepage	0.01	Cutbanks cave	0.10
Jacobsville	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.99	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Seepage	0.72	Ponding	1.00	Cutbanks cave	1.00
			Thin layer	0.99		
			Seepage	0.01		
51C:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
			Seepage	0.03		
Nipissing	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Large stones	0.77	Depth to water	1.00
	Depth to bedrock	0.52	Thin layer	0.52		
			Seepage	0.50		
Rock outcrop	Not rated		Not rated		Not rated	
51E:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
	Slope	0.18	Seepage	0.03		
Nipissing	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Large stones	0.77	Depth to water	1.00
	Depth to bedrock	0.52	Thin layer	0.52		
	Slope	0.18	Seepage	0.50		
Rock outcrop	Not rated		Not rated		Not rated	
52C:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
			Seepage	0.03		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
52C:						
Dishno	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
	Depth to bedrock	0.37	Thin layer	0.37	Depth to hard bedrock	0.96
			Seepage	0.10		
Rock outcrop	Not rated		Not rated		Not rated	
52E:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
	Slope	0.18	Seepage	0.03		
Dishno	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
	Depth to bedrock	0.37			Depth to hard bedrock	0.96
	Slope	0.18	Thin layer	0.37		
			Seepage	0.10		
Rock outcrop	Not rated		Not rated		Not rated	
53E:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
	Slope	0.18	Seepage	0.03		
Michigamme	Somewhat limited		Somewhat limited		Very limited	
	Depth to bedrock	0.86	Thin layer	0.86	Depth to water	1.00
	Seepage	0.72	Seepage	0.10		
	Slope	0.18				
Rock outcrop	Not rated		Not rated		Not rated	
53F:						
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
	Slope	0.88	Seepage	0.03		
Michigamme	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.88	Thin layer	0.86	Depth to water	1.00
	Depth to bedrock	0.86	Seepage	0.10		
	Seepage	0.72				
Rock outcrop	Not rated		Not rated		Not rated	
55B:						
Chocolay	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Depth to bedrock	1.00				
			Thin layer	1.00	Cutbanks cave	0.10
			Seepage	0.03		
100B:						
Waiska	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
100D:						
Waiska--------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00
	Slope	0.01				
102C:						
Waiska--------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00
Garlic--------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
102E:						
Waiska--------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00
	Slope	0.18				
Garlic--------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
	Slope	0.18				
102F:						
Waiska--------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00
	Slope	0.82				
Garlic--------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
	Slope	0.82				
110B:						
Shelldrake----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.95	Depth to water	1.00
Croswell------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.82	Depth to saturated zone	0.01
111B:						
Deer Park-----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.27	Depth to water	1.00
111D:						
Deer Park-----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.27	Depth to water	1.00
	Slope	0.01				
111E:						
Deer Park-----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.27	Depth to water	1.00
	Slope	0.18				
111F:						
Deer Park-----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.27	Depth to water	1.00
	Slope	1.00				

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
112C:						
Deer Park-----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.27	Depth to water	1.00
Croswell-----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.82	Depth to saturated zone	0.01
113C:						
Rubicon------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
Croswell-----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.82	Depth to saturated zone	0.01
120B:						
Garlic-------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
120D:						
Garlic-------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
	Slope	0.01				
120E:						
Garlic-------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
	Slope	0.28				
125A:						
Croswell-----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.82	Depth to saturated zone	0.01
Au Gres------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.75		
126B:						
Au Gres------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.75		
Deford-------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
			Depth to saturated zone	1.00		
			Seepage	0.75		
Croswell-----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.82	Depth to saturated zone	0.01

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
127A:						
Au Gres	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.75		
Kinross	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Ponding	1.00		
			Seepage	0.75		
130C:						
Garlic	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
Alcona	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Seepage	0.27	Depth to water	1.00
130E:						
Garlic	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
	Slope	0.18				
Alcona	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Seepage	0.27	Depth to water	1.00
	Slope	0.18				
133C:						
Keweenaw	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.08	Depth to water	1.00
Garlic	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
133E:						
Keweenaw	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.08	Depth to water	1.00
	Slope	0.18				
Garlic	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
	Slope	0.18				
133F:						
Keweenaw	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.08	Depth to water	1.00
	Slope	0.28				
Garlic	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	Depth to water	1.00
	Slope	0.82				
136B:						
Borgstrom	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	1.00	Cutbanks cave	1.00
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.01
			Seepage	0.14		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
136B:						
Ingalls	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Piping	1.00		
			Seepage	0.72		
142C:						
Wallace	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	0.99	Depth to water	1.00
	Depth to cemented pan	0.99	Seepage	0.93		
Rubicon	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
142F:						
Wallace	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	0.99	Depth to water	1.00
	Depth to cemented pan	0.99	Seepage	0.93		
	Slope	0.55				
Rubicon	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
	Slope	0.55				
155C:						
Montreal	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.93	Thin layer	0.93		
			Large stones	0.03		
			Seepage	0.03		
Paavola	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to bedrock	0.96	Thin layer	0.96		
			Seepage	0.38		
Waiska	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00
155E:						
Montreal	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.93	Thin layer	0.93		
	Slope	0.18	Large stones	0.03		
			Seepage	0.03		
Paavola	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.96	Thin layer	0.96		
	Slope	0.18	Seepage	0.38		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
155E:						
Waiska	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00
	Slope	0.18				
158A:						
Arnheim	Very limited		Very limited		Very limited	
	Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
			Depth to saturated zone	1.00		
			Piping	1.00		
			Seepage	0.10		
Sturgeon	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.10		
Pelkie	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.03	Depth to saturated zone	0.01
161F:						
Trimountain	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	1.00	Depth to water	1.00
	Depth to cemented pan	1.00	Seepage	0.04		
	Slope	0.82				
Lac La Belle	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.66	Depth to water	1.00
	Slope	0.82	Seepage	0.12		
	Depth to cemented pan	0.66				
Waiska	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00
	Slope	0.82				
162F:						
Trimountain	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	1.00	Depth to water	1.00
	Depth to cemented pan	1.00	Seepage	0.04		
	Slope	0.82				
Lac La Belle	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.66	Depth to water	1.00
	Slope	0.82	Seepage	0.12		
	Depth to cemented pan	0.66				
Michigamme	Somewhat limited		Somewhat limited		Very limited	
	Depth to bedrock	0.86	Thin layer	0.86	Depth to water	1.00
	Slope	0.82	Seepage	0.10		
	Seepage	0.72				

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
166B:						
Gratiot	Very limited		Very limited		Somewhat limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Seepage	1.00	Thin layer	1.00	Cutbanks cave	0.10
			Seepage	0.01	Large stones	0.01
			Large stones	0.01		
Sabattis	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Ponding	1.00		
			Seepage	0.03		
173C:						
Montreal	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.93	Thin layer	0.93		
			Large stones	0.03		
			Seepage	0.03		
Paavola	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.96	Thin layer	0.96		
			Seepage	0.38		
Dishno	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
	Depth to bedrock	0.37	Thin layer	0.37	Depth to hard bedrock	0.96
			Seepage	0.10		
173E:						
Montreal	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.93	Thin layer	0.93		
	Slope	0.18	Large stones	0.03		
			Seepage	0.03		
Paavola	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to bedrock	0.96	Thin layer	0.96		
	Slope	0.18	Seepage	0.38		
Dishno	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
	Depth to bedrock	0.37	Thin layer	0.37	Depth to hard bedrock	0.96
	Slope	0.18	Seepage	0.10		

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
174B:						
Montreal------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.93	Thin layer	0.93		
			Large stones	0.03		
			Seepage	0.03		
Dishno--------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
	Depth to bedrock	0.37	Thin layer	0.37	Depth to hard bedrock	0.96
			Seepage	0.10		
Gratiot-------------	Very limited		Very limited		Somewhat limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Seepage	1.00	Thin layer	1.00	Cutbanks cave	0.10
			Seepage	0.01	Large stones	0.01
			Large stones	0.01		
177A:						
Assinins------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.02		
183C:						
Munising------------	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Seepage	0.54	Thin layer	1.00		
			Seepage	0.01		
Abbaye--------------	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.86	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Seepage	0.54	Thin layer	0.86	Cutbanks cave	1.00
					Slow refill	0.28
Yalmer--------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.91	Thin layer	0.91		
			Seepage	0.10		
183E:						
Munising------------	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Seepage	0.54	Thin layer	1.00		
	Slope	0.18	Seepage	0.01		
Abbaye--------------	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.86	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Seepage	0.54	Thin layer	0.86	Cutbanks cave	1.00
	Slope	0.18			Slow refill	0.28

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
183E:						
Yalmer	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.91	Thin layer	0.91		
	Slope	0.18	Seepage	0.10		
184C:						
Munising	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Seepage	0.54	Thin layer	1.00		
			Seepage	0.01		
Yalmer	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.91	Thin layer	0.91		
			Seepage	0.10		
184E:						
Munising	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Seepage	0.54	Thin layer	1.00		
	Slope	0.18	Seepage	0.01		
Yalmer	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Depth to cemented pan	0.91	Thin layer	0.91		
	Slope	0.18	Seepage	0.10		
185B:						
Munising	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Seepage	0.54	Thin layer	1.00		
			Seepage	0.01		
Skanee	Very limited		Very limited		Somewhat limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Seepage	0.72	Thin layer	1.00	Slow refill	0.28
			Seepage	0.01	Cutbanks cave	0.10
185C:						
Munising	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to water	1.00
	Seepage	0.54	Thin layer	1.00		
			Seepage	0.01		
Skanee	Very limited		Very limited		Somewhat limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Seepage	0.72	Thin layer	1.00	Slow refill	0.28
			Seepage	0.01	Cutbanks cave	0.10

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
187A:						
Skanee	Very limited		Very limited		Somewhat limited	
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Seepage	0.72	Thin layer	1.00	Slow refill	0.28
			Seepage	0.01	Cutbanks cave	0.10
Gay	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Ponding	1.00		
			Seepage	0.03		
192B:						
Nipissing	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Large stones	0.77	Depth to water	1.00
	Depth to bedrock	0.52	Thin layer	0.52		
			Seepage	0.50		
Arcadian	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
			Seepage	0.03		
Rock outcrop	Not rated		Not rated		Not rated	
194B:						
Copper Harbor	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.38	Depth to saturated zone	0.01
195B:						
Copper Harbor	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.38	Depth to saturated zone	0.01
Bete Grise	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.75		
196B:						
Bete Grise	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.75		
Tawas	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Ponding	1.00		
			Seepage	0.75		
301:						
Udorthents	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.12	Seepage	0.03	Depth to water	1.00
Udipsamments	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.89	Depth to water	1.00

Table 14b.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
302:						
Histosols-----------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Organic matter content	1.00	Cutbanks cave	0.10
			Ponding	1.00		
			Depth to saturated zone	1.00		
			Piping	1.00		
Aquents-------------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.01	Ponding	1.00	Slow refill	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	1.00		
303:						
Aquents-------------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.01	Ponding	1.00	Slow refill	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	1.00		
Dumps, stamp sand---	Not rated		Not rated		Not rated	
310:						
Dumps, mine---------	Not rated		Not rated		Not rated	
311:						
Dumps, stamp sand---	Not rated		Not rated		Not rated	
312:						
Pits----------------	Not rated		Not rated		Not rated	
313:						
Dumps, sawdust------	Not rated		Not rated		Not rated	
W:						
Water---------------	Not rated		Not rated		Not rated	

Table 15.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
2:												
Lupton----------	0-8	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	8-80	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
Tawas-----------	0-6	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	6-25	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	---
	25-80	Sand, fine sand, loamy sand	SM, SP-SM, SP	A-3, A-2-4	0	0	90-100	85-100	40-95	0-30	0-18	NP-2
3:												
Dawson----------	0-6	Peat	PT	A-8	0	0	100	100	100	90-100	---	---
	6-38	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	---
	38-80	Sand	SW-SM, SM	A-1, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
Loxley----------	0-5	Peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	5-26	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
	26-45	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
	45-80	Mucky peat	PT	A-8	0	0	100	100	90-100	40-100	---	NP
6:												
Skandia---------	0-5	Mucky peat	PT	A-8	0	0	100	100	100	90-100	---	NP
	5-33	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	NP
	33-41	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	41-80	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Burt------------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	4-6	Mucky sand	SM, SC-SM	A-3	0	0	100	90-100	45-70	5-15	0-33	NP-6
	6-12	Sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-70	5-30	0-23	NP-6
	12-17	Sand	SM, SC-SM	A-3, A-2-4	0	0-15	90-100	90-100	45-70	5-30	0-23	NP-6
	>17	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
10:												
Cathro----------	0-16	Muck	PT	A-8	0	0-1	100	100	100	90-100	---	---
	16-34	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	---
	34-80	Very fine sandy loam, loam	CL, CL-ML, ML	A-4	0	0-3	90-95	85-90	70-85	45-65	16-36	2-17

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
10:												
Sabattis--------	0-8	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	8-12	Very cobbly very fine sandy loam	ML, CL-ML	A-4, A-6	0-6	15-35	65-80	55-75	45-75	25-65	20-40	2-12
	12-17	Cobbly very fine sandy loam	ML, CL-ML, CL	A-4, A-6	0-6	10-30	90-100	85-100	75-100	60-90	16-30	2-12
	17-32	Cobbly very fine sandy loam	SM, SC, ML, CL	A-2-4, A-4	0-6	10-30	90-95	85-90	50-85	25-60	16-30	2-12
	32-37	Cobbly fine sandy loam	SM, SC, ML, CL	A-1, A-2-4, A-4	0-6	10-30	75-95	50-90	45-90	15-70	16-30	2-12
	37-80	Very cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-4	3-6	15-30	75-95	65-90	40-65	20-40	16-30	2-12
13:												
Tawas-----------	0-6	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	6-25	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	---
	25-80	Sand, fine sand, loamy sand	SM, SP-SM, SP	A-3, A-2-4	0	0	90-100	85-100	40-95	0-30	0-18	NP-2
Deford----------	0-6	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	6-8	Sand	SM, SC-SM	A-1, A-2-4	0	0	100	100	50-70	5-15	0-29	NP-2
	8-80	Sand	SM, SC-SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
15B:												
Dawson----------	0-6	Peat	PT	A-8	0	0	100	100	100	90-100	---	---
	6-38	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	---
	38-80	Sand	SW-SM, SM	A-1, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
Croswell--------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-11	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-22	NP-2
	11-21	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-24	NP-2
	21-34	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
	34-80	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
20E. Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
21G:												
Rock outcrop.												
Arcadian--------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-5	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	16-31	1-10
	5-12	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	20-40	1-12
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
39A:												
Betsy Bay-------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-18	Sand, fine sand	SP-SM, SM	A-2-4, A-3, A-1	0	0	100	100	50-80	5-35	0-25	NP-4
	18-26	Sand, fine sand, loamy sand	SP-SM, SM	A-2-4, A-3, A-1	0-10	0	100	100	50-80	5-35	0-28	NP-10
	26-43	Flaggy sand, flaggy fine sand	SP-SM, SM	A-1, A-2-4, A-3	7-30	2-7	100	100	50-80	5-35	0-21	NP-4
	>43	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Burt------------	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	4-6	Mucky sand	SM, SC-SM	A-3	0	0	100	90-100	45-70	5-15	0-33	NP-6
	6-12	Sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-70	5-30	0-23	NP-6
	12-17	Sand	SM, SC-SM	A-3, A-2-4	0	0-15	90-100	90-100	45-70	5-30	0-23	NP-6
	>17	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Deford----------	0-6	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	6-8	Sand	SM, SC-SM	A-1, A-2-4	0	0	100	100	50-70	5-15	0-29	NP-2
	8-80	Sand	SM, SC-SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
47A:												
Zeba------------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-3	Fine sandy loam, loamy sand	SM, SC, SC-SM, ML	A-2-4, A-4	0	0	95-100	90-100	45-85	15-55	0-33	NP-12
	3-9	Fine sandy loam	SM, SC, SC-SM, ML	A-2-4, A-4	0	0	90-100	85-100	60-85	35-55	16-35	1-12
	9-14	Loamy sand, fine sandy loam	SM, SC, SC-SM	A-2-4, A-4	0	0	90-95	85-90	45-80	15-50	0-30	NP-12
	14-25	Fine sandy loam, loamy sand	SM, SC, SC-SM	A-2-4, A-4	0	0	90-95	85-90	60-80	15-50	0-30	NP-12
	25-27	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	>27	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Jacobsville-----	0-5	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	5-12	Fine sandy loam	SC, SC-SM, SM, GM	A-4, A-2-4, A-1	0	0	75-90	65-90	45-60	25-50	16-33	1-12
	12-20	Gravelly fine sandy loam	SM, SC, SC-SM	A-4, A-2-4	0	0-5	80-90	70-85	50-70	30-45	16-31	1-12
	20-21	Channery fine sandy loam, sandy loam	GM, SM, ML, CL	A-1, A-4, A-2-4	0	5-25	65-90	65-90	40-80	20-50	15-30	1-12
	21-22	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	>22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
51C:												
Arcadian--------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-5	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	16-31	1-10
	5-12	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	20-40	1-12
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
51C:												
Nipissing-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-4	Very cobbly fine sandy loam, very cobbly silt loam	GM, GC-GM	A-1, A-2-4	0-5	35-40	55-65	45-55	35-55	20-50	17-33	2-12
	4-20	Extremely cobbly fine sandy loam, extremely cobbly silt loam	GM, GC-GM	A-1, A-2-4	0-5	35-45	50-55	35-40	25-40	15-35	20-40	2-12
	20-29	Extremely cobbly fine sandy loam, extremely cobbly loam	GM, GC-GM	A-1, A-2-4	0-5	40-45	50-55	35-40	30-35	15-35	20-40	1-12
	29-35	Extremely cobbly fine sandy loam, extremely cobbly silt loam	GM, GC-GM	A-1, A-2-4	0-5	40-50	30-45	15-30	10-30	5-20	20-40	2-12
	35-39	Fragmental material, extremely cobbly loam	GM, GC-GM	A-1	0-5	65-75	20-40	0-20	0-20	0-15	0-33	NP-6
	>39	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
51E:												
Arcadian--------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-5	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	16-31	1-10
	5-12	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	20-40	1-12
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
51E:												
Nipissing-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-4	Very cobbly fine sandy loam, very cobbly silt loam	GM, GC-GM	A-1, A-2-4	0-5	35-40	55-65	45-55	35-55	20-50	17-33	2-12
	4-20	Extremely cobbly fine sandy loam, extremely cobbly silt loam	GM, GC-GM	A-1, A-2-4	0-5	35-45	50-55	35-40	25-40	15-35	20-40	2-12
	20-29	Extremely cobbly fine sandy loam, extremely cobbly loam	GM, GC-GM	A-1, A-2-4	0-5	40-45	50-55	35-40	30-35	15-35	20-40	1-12
	29-35	Extremely cobbly fine sandy loam, extremely cobbly silt loam	GM, GC-GM	A-1, A-2-4	0-5	40-50	30-45	15-30	10-30	5-20	20-40	2-12
	35-39	Fragmental material, extremely cobbly loam	GM, GC-GM	A-1	0-5	65-75	20-40	0-20	0-20	0-15	0-33	NP-6
	>39	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
52C:												
Arcadian--------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-5	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	16-31	1-10
	5-12	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	20-40	1-12
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Dishno----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-3	Cobbly very fine sandy loam	ML	A-4, A-2-4	0-7	5-15	80-95	80-90	55-80	35-55	20-40	1-12
	3-4	Cobbly very fine sandy loam	ML	A-4, A-2-4	4-7	5-20	80-95	80-90	55-80	30-55	16-33	1-12
	4-8	Cobbly very fine sandy loam	ML, SM	A-4, A-2-4	4-7	5-20	80-90	80-90	55-80	30-55	20-40	1-12
	8-26	Cobbly very fine sandy loam, cobbly fine sandy loam	ML, SM	A-4, A-2-4	4-7	5-20	80-95	75-90	50-75	30-50	16-35	1-12
	26-31	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-6	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	31-42	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-7	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	>42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
52E:												
Arcadian--------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-5	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	16-31	1-10
	5-12	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	20-40	1-12
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Dishno----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-3	Cobbly very fine sandy loam	ML	A-4, A-2-4	0-7	5-15	80-95	80-90	55-80	35-55	20-40	1-12
	3-4	Cobbly very fine sandy loam	ML	A-4, A-2-4	4-7	5-20	80-95	80-90	55-80	30-55	16-33	1-12
	4-8	Cobbly very fine sandy loam	ML, SM	A-4, A-2-4	4-7	5-20	80-90	80-90	55-80	30-55	20-40	1-12
	8-26	Cobbly very fine sandy loam, cobbly fine sandy loam	ML, SM	A-4, A-2-4	4-7	5-20	80-95	75-90	50-75	30-50	16-35	1-12
	26-31	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-6	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	31-42	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-7	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	>42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
53E:												
Arcadian--------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-5	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	16-31	1-10
	5-12	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	20-40	1-12
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Michigamme------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-4	Cobbly very fine sandy loam	CL-ML, ML	A-4	0	20-50	95-100	75-100	45-85	20-50	0-26	NP-6
	4-10	Cobbly very fine sandy loam	CL-ML, ML	A-4	0-1	0-50	95-100	75-100	45-95	20-90	0-37	NP-10
	10-22	Very cobbly very fine sandy loam, very cobbly sandy loam	CL-ML, ML, SM, SC-SM	A-4, A-2-4, A-1	0-1	0-50	95-100	75-100	45-95	20-90	0-33	NP-10
	22-30	Cobbly loamy sand, bouldery loamy sand, cobbly sandy loam	SM, SC-SM	A-1, A-2-4	0-5	0-30	85-100	75-95	45-65	20-40	0-29	NP-6
	>30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
53F:												
Arcadian--------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-5	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	16-31	1-10
	5-12	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	20-40	1-12
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Michigamme------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-4	Cobbly very fine sandy loam	CL-ML, ML	A-4	0	20-50	95-100	75-100	45-85	20-50	0-26	NP-6
	4-10	Cobbly very fine sandy loam	CL-ML, ML	A-4	0-1	0-50	95-100	75-100	45-95	20-90	0-37	NP-10
	10-22	Very cobbly very fine sandy loam, very cobbly sandy loam	CL-ML, ML, SM, SC-SM	A-4, A-2-4, A-1	0-1	0-50	95-100	75-100	45-95	20-90	0-33	NP-10
	22-30	Cobbly loamy sand, bouldery loamy sand, cobbly sandy loam	SM, SC-SM	A-1, A-2-4	0-5	0-30	85-100	75-95	45-65	20-40	0-29	NP-6
	>30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
55B:												
Chocolay--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-11	Very cobbly fine sandy loam	GC-GM, GM, GC	A-1, A-4	0	0-10	55-80	45-75	40-70	25-50	16-33	1-12
	11-13	Very gravelly fine sandy loam, cobbly fine sandy loam	GC-GM, GM	A-1, A-2-4	0-1	5-10	50-75	40-70	25-60	15-35	20-40	1-12
	13-18	Very gravelly very fine sandy loam, cobbly fine sandy loam, flaggy fine sandy loam	GC-GM, GM, GC	A-1, A-4	1-5	5-20	50-75	35-70	25-65	15-45	16-35	1-12
	18-21	Very flaggy fine sandy loam, flaggy fine sandy loam	GC-GM, GM, GC, SM	A-1, A-2-4	20-40	45-70	30-65	20-55	10-35	5-20	15-30	1-12
	>21	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
100B:												
Waiska----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Cobbly loamy sand, cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-3	0-8	0-15	75-90	65-90	35-70	10-35	0-31	NP-10
	7-23	Very gravelly loamy sand, very gravelly loamy coarse sand	SM, SW-SM, SC-SM	A-1, A-2-4	0-13	5-10	50-60	35-45	15-35	5-15	0-35	NP-7
	23-35	Extremely gravelly coarse sand, extremely gravelly sand	SC-SM, SW-SM	A-1	7-12	5-10	40-60	25-45	15-30	0-10	0-27	NP-4
	35-60	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SP-SM, SC-SM, SW-SM	A-1	6-12	5-10	30-60	10-50	5-35	0-10	0-21	NP-4
	60-80	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SC-SM, SP-SM, SW-SM	A-1	6	5-15	30-60	10-50	5-35	0-10	0-21	NP-4

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
100D:												
Waiska----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Cobbly loamy sand, cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-3	0-8	0-15	75-90	65-90	35-70	10-35	0-31	NP-10
	7-23	Very gravelly loamy sand, very gravelly loamy coarse sand	SM, SW-SM, SC-SM	A-1, A-2-4	0-13	5-10	50-60	35-45	15-35	5-15	0-35	NP-7
	23-35	Extremely gravelly coarse sand, extremely gravelly sand	SC-SM, SW-SM	A-1	7-12	5-10	40-60	25-45	15-30	0-10	0-27	NP-4
	35-60	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SP-SM, SC-SM, SW-SM	A-1	6-12	5-10	30-60	10-50	5-35	0-10	0-21	NP-4
	60-80	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SC-SM, SP-SM, SW-SM	A-1	6	5-15	30-60	10-50	5-35	0-10	0-21	NP-4

Table 15.--Engineering Index Properties--Continued

Map symbol and soil 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	
102C:												
Waiska----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Cobbly loamy sand, cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-3	0-8	0-15	75-90	65-90	35-70	10-35	0-31	NP-10
	7-23	Very gravelly loamy sand, very gravelly loamy coarse sand	SM, SW-SM, SC-SM	A-1, A-2-4	0-13	5-10	50-60	35-45	15-35	5-15	0-35	NP-7
	23-35	Extremely gravelly coarse sand, extremely gravelly sand	SC-SM, SW-SM	A-1	7-12	5-10	40-60	25-45	15-30	0-10	0-27	NP-4
	35-60	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SP-SM, SC-SM, SW-SM	A-1	6-12	5-10	30-60	10-50	5-35	0-10	0-21	NP-4
	60-80	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SC-SM, SP-SM, SW-SM	A-1	6	5-15	30-60	10-50	5-35	0-10	0-21	NP-4
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
102E:												
Waiska----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Cobbly loamy sand, cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-3	0-8	0-15	75-90	65-90	35-70	10-35	0-31	NP-10
	7-23	Very gravelly loamy sand, very gravelly loamy coarse sand	SM, SW-SM, SC-SM	A-1, A-2-4	0-13	5-10	50-60	35-45	15-35	5-15	0-35	NP-7
	23-35	Extremely gravelly coarse sand, extremely gravelly sand	SC-SM, SW-SM	A-1	7-12	5-10	40-60	25-45	15-30	0-10	0-27	NP-4
	35-60	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SP-SM, SC-SM, SW-SM	A-1	6-12	5-10	30-60	10-50	5-35	0-10	0-21	NP-4
	60-80	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SC-SM, SP-SM, SW-SM	A-1	6	5-15	30-60	10-50	5-35	0-10	0-21	NP-4
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-1, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-1, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-1, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-1, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
102F:												
Waiska----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Cobbly loamy sand, cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-3	0-8	0-15	75-90	65-90	35-70	10-35	0-31	NP-10
	7-23	Very gravelly loamy sand, very gravelly loamy coarse sand	SM, SW-SM, SC-SM	A-1, A-2-4	0-13	5-10	50-60	35-45	15-35	5-15	0-35	NP-7
	23-35	Extremely gravelly coarse sand, extremely gravelly sand	SC-SM, SW-SM	A-1	7-12	5-10	40-60	25-45	15-30	0-10	0-27	NP-4
	35-60	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SP-SM, SC-SM, SW-SM	A-1	6-12	5-10	30-60	10-50	5-35	0-10	0-21	NP-4
	60-80	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SC-SM, SP-SM, SW-SM	A-1	6	5-15	30-60	10-50	5-35	0-10	0-21	NP-4
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
110B:												
Shelldrake------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-6	Sand	SP-SM, SP	A-3	0	0	100	100	50-70	0-10	0-22	NP-1
	6-13	Sand	SP-SM, SP	A-3	0	0	100	100	50-70	0-10	0-18	NP-1
	13-23	Sand	SP-SM, SP	A-3	0	0	100	100	50-70	0-10	0-17	NP-1
	23-80	Sand	SP-SM, SP	A-3	0	0	100	100	50-70	0-10	0-17	NP-1
Croswell--------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-11	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-22	NP-2
	11-21	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-24	NP-2
	21-34	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
	34-80	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
111B:												
Deer Park-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-8	Sand, fine sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	8-17	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-24	NP-2
	17-24	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	24-35	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2
	35-80	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2
111D:												
Deer Park-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-8	Sand, fine sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	8-17	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-24	NP-2
	17-24	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	24-35	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2
	35-80	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2
111E:												
Deer Park-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-8	Sand, fine sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	8-17	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-24	NP-2
	17-24	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	24-35	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2
	35-80	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
111F:												
Deer Park-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-8	Sand, fine sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	8-17	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-24	NP-2
	17-24	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	24-35	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2
	35-80	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2
112C:												
Deer Park-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-8	Sand, fine sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	8-17	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-24	NP-2
	17-24	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-22	NP-2
	24-35	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2
	35-80	Fine sand, sand	SM, SP-SM	A-3, A-2-4	0	0	100	100	50-80	5-30	0-19	NP-2
Croswell--------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-11	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-22	NP-2
	11-21	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-24	NP-2
	21-34	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
	34-80	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
113C:												
Rubicon---------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Sand	SP, SP-SM, SM	A-3, A-2-4	0	0	95-100	85-100	40-70	0-15	0-0	NP
	7-34	Sand	SP, SP-SM, SM	A-3, A-2-4	0	0	95-100	85-100	40-70	0-15	0-0	NP
	34-44	Sand, coarse sand	SP, SP-SM, SM	A-3, A-2-4, A-1	0	0	95-100	85-100	40-70	0-15	0-0	NP
	44-80	Sand, coarse sand	SP, SP-SM, SM	A-3, A-2-4, A-1	0	0	95-100	85-100	40-70	0-15	0-0	NP
Croswell--------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-11	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-22	NP-2
	11-21	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-24	NP-2
	21-34	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
	34-80	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
120B:												
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
120D:												
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
120E:												
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil 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	
125A:												
Croswell--------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-11	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-22	NP-2
	11-21	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-24	NP-2
	21-34	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
	34-80	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
Au Gres---------	0-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-13	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-25	NP-4
	13-19	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-31	NP-4
	19-28	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-27	NP-4
	28-34	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-21	NP-4
	34-80	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-21	NP-4
126B:												
Au Gres---------	0-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-13	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-25	NP-4
	13-19	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-31	NP-4
	19-28	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-27	NP-4
	28-34	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-21	NP-4
	34-80	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-21	NP-4
Deford----------	0-6	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	6-8	Sand	SM, SC-SM	A-1, A-2-4	0	0	100	100	50-70	5-15	0-29	NP-2
	8-80	Sand	SM, SC-SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
Croswell--------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-11	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-22	NP-2
	11-21	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-24	NP-2
	21-34	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2
	34-80	Sand	SW-SM, SM	A-3, A-2-4	0	0	100	100	50-70	5-15	0-19	NP-2

Table 15.--Engineering Index Properties--Continued

Map symbol and soil 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	
127A:												
Au Gres---------	0-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-13	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-25	NP-4
	13-19	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-31	NP-4
	19-28	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-27	NP-4
	28-34	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-21	NP-4
	34-80	Sand	SW-SM	A-2-4, A-3	0	0	100	95-100	50-70	5-15	0-21	NP-4
Kinross---------	0-2	Peat	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	---
	6-16	Sand	SM, SC-SM, SP-SM	A-3, A-2-4, A-1	0	0	95-100	90-100	50-80	5-30	0-22	NP-2
	16-32	Sand	SM, SC-SM, SP-SM	A-3, A-2-4, A-1	0	0	95-100	90-100	50-80	5-30	0-29	NP-2
	32-80	Sand	SM, SC-SM, SP-SM	A-3, A-2-4, A-1	0	0	95-100	90-100	50-80	5-30	0-19	NP-2
130C:												
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
130C:												
Alcona----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-4	Very fine sandy loam	CL-ML, ML, CL	A-4	0	0-2	100	100	85-95	50-65	0-33	NP-12
	4-7	Very fine sandy loam	CL-ML, ML, CL	A-4	0	0-2	100	100	85-95	50-65	0-40	NP-12
	7-29	Very fine sandy loam	CL-ML, ML, CL	A-4	0	0-2	100	100	85-95	50-65	0-35	NP-12
	29-40	Very fine sandy loam, loamy very fine sand	CL-ML, SM, ML, SC-SM	A-4	0	0-1	100	100	65-95	40-65	0-30	NP-12
	40-46	Very fine sandy loam, loamy very fine sand, fine sand	CL-ML, SM, ML	A-4, A-2-4	0	0-2	100	100	65-95	20-65	0-30	NP-12
	46-69	Stratified fine sand to loamy fine sand	SM, SC-SM	A-2-4, A-4	0	0-2	100	100	65-85	20-45	0-27	NP-10
	69-80	Fine sand	SM, SC-SM	A-2-4	0	0-2	100	100	65-80	20-35	0-21	NP-4
130E:												
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
130E:												
Alcona----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-4	Very fine sandy loam	CL-ML, ML, CL	A-4	0	0-2	100	100	85-95	50-65	0-33	NP-12
	4-7	Very fine sandy loam	CL-ML, ML, CL	A-4	0	0-2	100	100	85-95	50-65	0-40	NP-12
	7-29	Very fine sandy loam	CL-ML, ML, CL	A-4	0	0-2	100	100	85-95	50-65	0-35	NP-12
	29-40	Very fine sandy loam, loamy very fine sand	CL-ML, SM, ML, SC-SM	A-4	0	0-1	100	100	65-95	40-65	0-30	NP-12
	40-46	Very fine sandy loam, loamy very fine sand, fine sand	CL-ML, SM, ML	A-4, A-2-4	0	0-2	100	100	65-95	20-65	0-30	NP-12
	46-69	Stratified fine sand to loamy fine sand	SM, SC-SM	A-2-4, A-4	0	0-2	100	100	65-85	20-45	0-27	NP-10
	69-80	Fine sand	SM, SC-SM	A-2-4	0	0-2	100	100	65-80	20-35	0-21	NP-4
133C:												
Keweenaw--------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-11	Loamy sand	SM, SC-SM	A-2-4	0	0	95-100	95-100	50-75	15-30	0-31	NP-10
	11-17	Loamy sand	SM, SC-SM	A-2-4	0	0	95-100	95-100	50-75	15-30	0-37	NP-10
	17-39	Loamy sand, fine sandy loam	SM, SC-SM, SC	A-2-4, A-4	0	0	95-100	85-100	45-85	15-55	16-35	1-12
	39-61	Fine sandy loam, loamy sand	SM, SC-SM, SC	A-4, A-2-4	0	0	95-100	95-100	65-85	15-55	15-30	1-12
	61-80	Loamy sand, fine sandy loam, sandy loam	SM, SC-SM, SC	A-2-4, A-4	0	0	95-100	90-100	45-85	15-55	0-30	NP-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
133C:												
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
133E:												
Keweenaw--------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-11	Loamy sand	SM, SC-SM	A-2-4	0	0	95-100	95-100	50-75	15-30	0-31	NP-10
	11-17	Loamy sand	SM, SC-SM	A-2-4	0	0	95-100	95-100	50-75	15-30	0-37	NP-10
	17-39	Loamy sand, fine sandy loam	SM, SC-SM, SC	A-2-4, A-4	0	0	95-100	85-100	45-85	15-55	16-35	1-12
	39-61	Fine sandy loam, loamy sand	SM, SC-SM, SC	A-4, A-2-4	0	0	95-100	95-100	65-85	15-55	15-30	1-12
	61-80	Loamy sand, fine sandy loam, sandy loam	SM, SC-SM, SC	A-2-4, A-4	0	0	95-100	90-100	45-85	15-55	0-30	NP-12
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
133F:												
Keweenaw--------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-11	Loamy sand	SM, SC-SM	A-2-4	0	0	95-100	95-100	50-75	15-30	0-31	NP-10
	11-17	Loamy sand	SM, SC-SM	A-2-4	0	0	95-100	95-100	50-75	15-30	0-37	NP-10
	17-39	Loamy sand, fine sandy loam	SM, SC-SM, SC	A-2-4, A-4	0	0	95-100	85-100	45-85	15-55	16-35	1-12
	39-61	Fine sandy loam, loamy sand	SM, SC-SM, SC	A-4, A-2-4	0	0	95-100	95-100	65-85	15-55	15-30	1-12
	61-80	Loamy sand, fine sandy loam, sandy loam	SM, SC-SM, SC	A-2-4, A-4	0	0	95-100	90-100	45-85	15-55	0-30	NP-12
Garlic----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Loamy fine sand, fine sand	SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	60-85	15-45	0-26	NP-6
	7-13	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-33	NP-6
	13-20	Fine sand, sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-29	NP-6
	20-27	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	95-100	90-100	45-80	5-35	0-26	NP-6
	27-46	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
	46-80	Sand, fine sand	SM, SC-SM	A-3, A-2-4	0	0	90-100	85-100	45-80	5-35	0-23	NP-6
136B:												
Borgstrom-------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-8	Fine sand	SM, SC-SM	A-2-4	0	0-7	100	100	65-80	20-30	15-20	NP-4
	8-11	Fine sand	SM, SC-SM	A-2-4	0	0-7	100	100	65-80	20-30	0-26	NP-6
	11-18	Fine sand	SM, SC-SM	A-2-4	0	0-7	100	100	65-80	20-30	0-26	NP-6
	18-21	Fine sand	SM, SC-SM	A-2-4	0	0-7	100	100	65-80	20-30	0-23	NP-6
	21-24	Fine sand	SM, SC-SM	A-2-4	0	0-7	100	100	65-80	20-30	0-21	NP-4
	24-80	Stratified loamy fine sand to loamy very fine sand to fine sand to very fine sandy loam to silt loam	SC-SM, SC, CL-ML, CL	A-2-4, A-4, A-6	0	0	100	100	65-100	20-90	0-36	NP-17

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
136B:												
Ingalls---------	0-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-5	Sand	SP, SP-SM	A-3	0	0	90-100	85-100	45-70	0-10	0-31	NP-4
	5-14	Loamy sand, sand, fine sand	SP, SP-SM	A-2-4, A-3	0	0	90-100	85-100	40-95	0-35	0-26	NP-6
	14-16	Loamy sand, fine sand, sand	SM, SP, SP-SM	A-2-4, A-3	0	0	90-100	85-100	40-95	0-35	0-33	NP-6
	16-35	Fine sand, loamy sand, sand	SP, SP-SM, SM	A-3, A-2-4	0	0	90-100	85-100	40-95	0-35	0-26	NP-6
	35-80	Silt loam, loamy fine sand, loamy very fine sand, silt	ML, SM	A-4	0	0	100	100	60-100	35-95	0-27	NP-10
142C:												
Wallace---------	0-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-5	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-29	NP-2
	5-22	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-22	NP-2
	22-31	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-29	NP-2
	31-37	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-27	NP-2
	37-62	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-24	NP-2
	62-74	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-19	NP-2
	74-80	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-19	NP-2
Rubicon---------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Sand	SP, SP-SM, SM	A-3, A-2-4	0	0	95-100	85-100	40-70	0-15	0-0	NP
	7-34	Sand	SP, SP-SM, SM	A-3, A-2-4	0	0	95-100	85-100	40-70	0-15	0-0	NP
	34-44	Sand, coarse sand	SP, SP-SM, SM	A-3, A-2-4, A-1	0	0	95-100	85-100	40-70	0-15	0-0	NP
	44-80	Sand, coarse sand	SP, SP-SM, SM	A-3, A-2-4, A-1	0	0	95-100	85-100	40-70	0-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
142F:												
Wallace---------	0-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-5	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-29	NP-2
	5-22	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-22	NP-2
	22-31	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-29	NP-2
	31-37	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-27	NP-2
	37-62	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-24	NP-2
	62-74	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-19	NP-2
	74-80	Sand	SM	A-2-4, A-3	0	0	100	100	50-70	5-15	0-19	NP-2
Rubicon---------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Sand	SP, SP-SM, SM	A-3, A-2-4	0	0	95-100	85-100	40-70	0-15	0-0	NP
	7-34	Sand	SP, SP-SM, SM	A-3, A-2-4	0	0	95-100	85-100	40-70	0-15	0-0	NP
	34-44	Sand, coarse sand	SP, SP-SM, SM	A-3, A-2-4, A-1	0	0	95-100	85-100	40-70	0-15	0-0	NP
	44-80	Sand, coarse sand	SP, SP-SM, SM	A-3, A-2-4, A-1	0	0	95-100	85-100	40-70	0-15	0-0	NP
155C:												
Montreal--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	16-33	1-12
	6-11	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	20-40	1-12
	11-20	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-1, A-4, A-2-4	2-14	15-35	65-90	55-90	40-75	20-50	16-35	1-12
	20-33	Very cobbly loamy fine sand, very cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-12	15-45	40-90	25-85	20-70	5-45	0-25	NP-7
	33-51	Very cobbly fine sandy loam, very cobbly loamy fine sand	GP-GM, GM, SM, SC-SM	A-1, A-4, A-2-4, A-3	1-12	15-45	45-90	25-85	20-70	5-45	0-25	NP-7
	51-80	Cobbly loamy fine sand, cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-8	15-50	40-90	25-85	20-70	10-45	0-25	NP-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
155C:												
Paavola---------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly loamy sand	SM, SC-SM, SC	A-1, A-2-4	2-4	10-15	60-80	50-70	25-55	5-20	0-37	NP-10
	6-12	Cobbly loamy sand	SM, SC-SM, SC	A-1, A-2-4	2-4	15-20	60-80	45-70	25-55	5-20	0-37	NP-10
	12-27	Very gravelly sand	SP, SP-SM, SC-SM	A-1	1-3	15-30	40-75	25-65	15-45	0-10	0-27	NP-4
	27-35	Very gravelly loamy fine sand, gravelly fine sandy loam	SC, SM, SC-SM	A-1, A-2-4, A-4	1-3	5-15	75-90	65-85	45-70	20-45	0-30	NP-12
	35-46	Gravelly fine sandy loam	SC, SM, SC-SM	A-2-4, A-4	1-3	5-15	70-85	70-80	50-65	25-45	15-30	1-12
	46-80	Gravelly sandy loam	SC, SM, SC-SM	A-1, A-2-4	1-4	5-15	70-85	60-75	35-55	20-30	15-30	1-12
Waiska----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Cobbly loamy sand, cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-3	0-8	0-15	75-90	65-90	35-70	10-35	0-31	NP-10
	7-23	Very gravelly loamy sand, very gravelly loamy coarse sand	SM, SW-SM, SC-SM	A-1, A-2-4	0-13	5-10	50-60	35-45	15-35	5-15	0-35	NP-7
	23-35	Extremely gravelly coarse sand, extremely gravelly sand	SC-SM, SW-SM	A-1	7-12	5-10	40-60	25-45	15-30	0-10	0-27	NP-4
	35-60	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SP-SM, SC-SM, SW-SM	A-1	6-12	5-10	30-60	10-50	5-35	0-10	0-21	NP-4
	60-80	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SC-SM, SP-SM, SW-SM	A-1	6	5-15	30-60	10-50	5-35	0-10	0-21	NP-4

Table 15.--Engineering Index Properties--Continued

Map symbol and soil 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	
155E:												
Montreal--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	16-33	1-12
	6-11	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	20-40	1-12
	11-20	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-1, A-4, A-2-4	2-14	15-35	65-90	55-90	40-75	20-50	16-35	1-12
	20-33	Very cobbly loamy fine sand, very cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-12	15-45	40-90	25-85	20-70	5-45	0-25	NP-7
	33-51	Very cobbly fine sandy loam, very cobbly loamy fine sand	GP-GM, GM, SM, SC-SM	A-1, A-4, A-2-4, A-3	1-12	15-45	45-90	25-85	20-70	5-45	0-25	NP-7
	51-80	Cobbly loamy fine sand, cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-8	15-50	40-90	25-85	20-70	10-45	0-25	NP-7
Paavola---------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly loamy sand	SM, SC-SM, SC	A-1, A-2-4	2-4	10-15	60-80	50-70	25-55	5-20	0-37	NP-10
	6-12	Cobbly loamy sand	SM, SC-SM, SC	A-1, A-2-4	2-4	15-20	60-80	45-70	25-55	5-20	0-37	NP-10
	12-27	Very gravelly sand	SP, SP-SM, SC-SM	A-1	1-3	15-30	40-75	25-65	15-45	0-10	0-27	NP-4
	27-35	Very gravelly loamy fine sand, gravelly fine sandy loam	SC, SM, SC-SM	A-1, A-2-4, A-4	1-3	5-15	75-90	65-85	45-70	20-45	0-30	NP-12
	35-46	Gravelly fine sandy loam	SC, SM, SC-SM	A-2-4, A-4	1-3	5-15	70-85	70-80	50-65	25-45	15-30	1-12
	46-80	Gravelly sandy loam	SC, SM, SC-SM	A-1, A-2-4	1-4	5-15	70-85	60-75	35-55	20-30	15-30	1-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil 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	
155E:												
Waiska----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Cobbly loamy sand, cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-3	0-8	0-15	75-90	65-90	35-70	10-35	0-31	NP-10
	7-23	Very gravelly loamy sand, very gravelly loamy coarse sand	SM, SW-SM, SC-SM	A-1, A-2-4	0-13	5-10	50-60	35-45	15-35	5-15	0-35	NP-7
	23-35	Extremely gravelly coarse sand, extremely gravelly sand	SC-SM, SW-SM	A-1	7-12	5-10	40-60	25-45	15-30	0-10	0-27	NP-4
	35-60	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SP-SM, SC-SM, SW-SM	A-1	6-12	5-10	30-60	10-50	5-35	0-10	0-21	NP-4
	60-80	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SC-SM, SP-SM, SW-SM	A-1	6	5-15	30-60	10-50	5-35	0-10	0-21	NP-4
158A:												
Arnheim---------	0-4	Mucky very fine sandy loam, mucky fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-95	40-65	20-37	1-12
	4-9	Very fine sandy loam	CL-ML, ML, SC-SM	A-4	0	0	100	100	85-95	50-65	15-31	1-12
	9-22	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	16-31	2-12
	22-35	Stratified very fine sandy loam to fine sandy loam to silt loam	CL-ML, ML, SM	A-4	0	0	100	100	70-100	40-90	15-31	1-12
	35-50	Fine sandy loam	SM, SC-SM, SC	A-4	0	0	100	100	70-85	40-55	15-28	1-12
	50-60	Loamy sand	SM, SC-SM, SC	A-2-4	0	0	100	100	50-75	15-30	0-26	NP-9

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
158A:												
Sturgeon--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-16	Silt loam	CL-ML, ML, CL	A-4	0	0	100	100	90-100	70-90	16-33	1-13
	16-42	Loamy sand, loamy fine sand, loamy very fine sand	SM, SC-SM, ML, CL-ML, SC	A-2-4, A-4	0	0	100	100	50-90	15-60	0-28	NP-10
	42-48	Fine sandy loam	CL-ML, ML, CL	A-4	0	0	100	100	70-85	40-55	16-31	1-12
	48-60	Loamy sand	SC-SM, SM, SC	A-2-4	0	0	100	100	50-75	15-30	0-28	NP-10
Pelkie----------	0-6	Loamy fine sand	SM, SC-SM	A-2-4	0	0	100	100	50-95	15-35	18-28	2-7
	6-22	Loamy fine sand	SM, SC-SM, SP-SM	A-2-4, A-3	0	0	100	100	50-80	5-35	0-24	NP-6
	22-80	Loamy fine sand, very fine sandy loam	SM, SP-SM	A-2-4, A-3	0	0	100	100	50-80	5-35	0-24	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
161F:												
Trimountain-----	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly very fine sandy loam, cobbly loamy fine sand	GM, ML, CL-ML, SC-SM, SM	A-1, A-4, A-2-4	0-3	10-20	75-95	65-90	45-85	20-60	16-33	1-12
	6-11	Cobbly very fine sandy loam, cobbly fine sandy loam	GM, ML, CL-ML, SC-SM, SM	A-1, A-4, A-2-4	0-4	10-30	70-95	60-90	45-85	25-60	0-40	NP-12
	11-20	Cobbly very fine sandy loam, cobbly fine sandy loam	GM, ML, CL-ML, SC-SM, SM	A-1, A-4, A-2-4	0-4	15-30	65-90	55-90	40-85	20-60	0-35	NP-12
	20-33	Very cobbly loamy fine sand, very cobbly fine sandy loam	GM, SC-SM, SM	A-1, A-2-4, A-4	1-4	15-25	60-90	50-85	35-70	15-45	0-30	NP-12
	33-51	Very cobbly fine sandy loam, very cobbly loamy fine sand	GM, SC-SM, SM	A-1, A-2-4, A-4	1-4	15-25	60-90	50-85	35-70	15-45	0-30	NP-12
	51-80	Cobbly loamy fine sand, cobbly fine sandy loam	SM, SC-SM, ML, GM	A-2-4, A-4, A-1	0-4	15-20	70-95	60-90	45-75	15-50	0-30	NP-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
161F:												
Lac La Belle----	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-5	Very stony loamy sand, very stony fine sandy loam	GC-GM, GM, GC	A-1, A-2-4	0-20	15-18	25-45	5-30	0-25	0-15	0-33	NP-12
	5-12	Extremely stony loamy sand, extremely stony fine sandy loam	GC-GM, GM, GC	A-2-4, A-1	0-19	7-15	25-65	5-50	5-40	0-25	0-40	NP-12
	12-36	Extremely cobbly loamy sand	GC-GM, GM, SM	A-1, A-2-4	0-18	7-21	25-65	10-45	5-35	0-15	0-33	NP-10
	36-42	Very cobbly loamy sand, very cobbly sandy loam, very cobbly loamy fine sand, very cobbly fine sandy loam	GC-GM, SC-SM	A-1, A-2-4, A-4	0-18	7-26	50-85	35-80	25-65	5-45	0-30	NP-12
	42-50	Very cobbly loamy sand, very cobbly loamy fine sand	GC-GM, SC-SM	A-1, A-2-4	0-18	7-26	50-85	35-80	20-65	5-35	0-27	NP-10
	50-62	Very cobbly sandy loam, very cobbly loamy sand, very cobbly fine sandy loam, very cobbly loamy fine sand	GC-GM, SC-SM	A-2-4, A-4	0-17	7-26	50-85	35-80	20-65	5-45	0-30	NP-12
	62-80	Very cobbly loamy sand, very cobbly loamy fine sand	GC-GM, SM	A-1, A-2-4	0-17	7-26	50-85	35-80	20-65	5-35	0-27	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
161F:												
Waiska----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-7	Cobbly loamy sand, cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-3	0-8	0-15	75-90	65-90	35-70	10-35	0-31	NP-10
	7-23	Very gravelly loamy sand, very gravelly loamy coarse sand	SM, SW-SM, SC-SM	A-1, A-2-4	0-13	5-10	50-60	35-45	15-35	5-15	0-35	NP-7
	23-35	Extremely gravelly coarse sand, extremely gravelly sand	SC-SM, SW-SM	A-1	7-12	5-10	40-60	25-45	15-30	0-10	0-27	NP-4
	35-60	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SP-SM, SC-SM, SW-SM	A-1	6-12	5-10	30-60	10-50	5-35	0-10	0-21	NP-4
	60-80	Extremely gravelly coarse sand, extremely gravelly sand	GP, SP, SC-SM, SP-SM, SW-SM	A-1	6	5-15	30-60	10-50	5-35	0-10	0-21	NP-4

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
162F:												
Trimountain-----	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly very fine sandy loam, cobbly loamy fine sand	GM, ML, CL-ML, SC-SM, SM	A-1, A-4, A-2-4	0-3	10-20	75-95	65-90	45-85	20-60	16-33	1-12
	6-11	Cobbly very fine sandy loam, cobbly fine sandy loam	GM, ML, CL-ML, SC-SM, SM	A-1, A-4, A-2-4	0-4	10-30	70-95	60-90	45-85	25-60	0-40	NP-12
	11-20	Cobbly very fine sandy loam, cobbly fine sandy loam	GM, ML, CL-ML, SC-SM, SM	A-1, A-4, A-2-4	0-4	15-30	65-90	55-90	40-85	20-60	0-35	NP-12
	20-33	Very cobbly loamy fine sand, very cobbly fine sandy loam	GM, SC-SM, SM	A-1, A-2-4, A-4	1-4	15-25	60-90	50-85	35-70	15-45	0-30	NP-12
	33-51	Very cobbly fine sandy loam, very cobbly loamy fine sand	GM, SC-SM, SM	A-1, A-2-4, A-4	1-4	15-25	60-90	50-85	35-70	15-45	0-30	NP-12
	51-80	Cobbly loamy fine sand, cobbly fine sandy loam	SM, SC-SM, ML, GM	A-2-4, A-4, A-1	0-4	15-20	70-95	60-90	45-75	15-50	0-30	NP-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
162F:												
Lac La Belle----	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-5	Very stony loamy sand, very stony fine sandy loam	GC-GM, GM, GC	A-1, A-2-4	0-20	15-18	25-45	5-30	0-25	0-15	0-33	NP-12
	5-12	Extremely stony loamy sand, extremely stony fine sandy loam	GC-GM, GM, GC	A-2-4, A-1	0-19	7-15	25-65	5-50	5-40	0-25	0-40	NP-12
	12-36	Extremely cobbly loamy sand	GC-GM, GM, SM	A-1, A-2-4	0-18	7-21	25-65	10-45	5-35	0-15	0-33	NP-10
	36-42	Very cobbly loamy sand, very cobbly sandy loam, very cobbly loamy fine sand, very cobbly fine sandy loam	GC-GM, SC-SM	A-1, A-2-4, A-4	0-18	7-26	50-85	35-80	25-65	5-45	0-30	NP-12
	42-50	Very cobbly loamy sand, very cobbly loamy fine sand	GC-GM, SC-SM	A-1, A-2-4	0-18	7-26	50-85	35-80	20-65	5-35	0-27	NP-10
	50-62	Very cobbly sandy loam, very cobbly loamy sand, very cobbly fine sandy loam, very cobbly loamy fine sand	GC-GM, SC-SM	A-2-4, A-4	0-17	7-26	50-85	35-80	20-65	5-45	0-30	NP-12
	62-80	Very cobbly loamy sand, very cobbly loamy fine sand	GC-GM, SM	A-1, A-2-4	0-17	7-26	50-85	35-80	20-65	5-35	0-27	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
162F:												
Michigamme------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-4	Cobbly very fine sandy loam	CL-ML, ML	A-4	0	20-50	95-100	75-100	45-85	20-50	0-26	NP-6
	4-10	Cobbly very fine sandy loam	CL-ML, ML	A-4	0-1	0-50	95-100	75-100	45-95	20-90	0-37	NP-10
	10-22	Very cobbly very fine sandy loam, very cobbly sandy loam	CL-ML, ML, SM, SC-SM	A-4, A-2-4, A-1	0-1	0-50	95-100	75-100	45-95	20-90	0-33	NP-10
	22-30	Cobbly loamy sand, bouldery loamy sand, cobbly sandy loam	SM, SC-SM	A-1, A-2-4	0-5	0-30	85-100	75-95	45-65	20-40	0-29	NP-6
	>30	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
166B:												
Gratiot---------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-4	Very cobbly fine sandy loam, cobbly very fine sandy loam	ML, SC-SM	A-1, A-2-4	0-2	25-35	55-100	40-100	25-95	15-65	20-42	1-12
	4-7	Very cobbly loamy sand, cobbly loamy very fine sand, gravelly fine sandy loam	SM, SC, SC-SM	A-1, A-2-4	0-2	10-35	40-80	25-75	10-70	5-45	0-40	NP-12
	7-12	Very cobbly loamy sand, cobbly loamy very fine sand, gravelly fine sandy loam	SM, SC, SC-SM	A-1, A-2-4	0-2	10-35	40-80	25-75	10-70	5-45	0-35	NP-12
	12-20	Very cobbly fine sandy loam, gravelly very fine sandy loam, cobbly loamy sand	SM, SC, SC-SM	A-1, A-2-4	0-2	10-35	40-80	25-75	20-70	5-45	16-35	1-12
	20-30	Cobbly fine sandy loam, cobbly loamy fine sand, cobbly loamy sand, gravelly very fine sandy loam	SM, SC, SC-SM, ML	A-1, A-2-4	0-2	0-20	60-95	45-95	25-90	5-60	0-30	NP-12
	30-80	Cobbly fine sandy loam, cobbly loamy fine sand, cobbly loamy sand	SM, SC, SC-SM	A-1, A-2-4	0-10	0-25	55-80	35-75	20-65	5-40	0-30	NP-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
166B:												
Sabattis--------	0-8	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	8-12	Very cobbly very fine sandy loam	ML, CL-ML	A-4, A-6	0-6	15-35	65-80	55-75	45-75	25-65	20-40	2-12
	12-17	Cobbly very fine sandy loam	ML, CL-ML, CL	A-4, A-6	0-6	10-30	90-100	85-100	75-100	60-90	16-30	2-12
	17-32	Cobbly very fine sandy loam	SM, SC, ML, CL	A-2-4, A-4	0-6	10-30	90-95	85-90	50-85	25-60	16-30	2-12
	32-37	Cobbly fine sandy loam	SM, SC, ML, CL	A-1, A-2-4, A-4	0-6	10-30	75-95	50-90	45-90	15-70	16-30	2-12
	37-80	Very cobbly sandy loam	SM, SC, SC-SM	A-1, A-2-4, A-4	3-6	15-30	75-95	65-90	40-65	20-40	16-30	2-12
173C:												
Montreal--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	16-33	1-12
	6-11	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	20-40	1-12
	11-20	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-1, A-4, A-2-4	2-14	15-35	65-90	55-90	40-75	20-50	16-35	1-12
	20-33	Very cobbly loamy fine sand, very cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-12	15-45	40-90	25-85	20-70	5-45	0-25	NP-7
	33-51	Very cobbly fine sandy loam, very cobbly loamy fine sand	GP-GM, GM, SM, SC-SM	A-1, A-4, A-2-4, A-3	1-12	15-45	45-90	25-85	20-70	5-45	0-25	NP-7
	51-80	Cobbly loamy fine sand, cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-8	15-50	40-90	25-85	20-70	10-45	0-25	NP-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil 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	
173C:												
Paavola---------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly loamy sand	SM, SC-SM, SC	A-1, A-2-4	2-4	10-15	60-80	50-70	25-55	5-20	0-37	NP-10
	6-12	Cobbly loamy sand	SM, SC-SM, SC	A-1, A-2-4	2-4	15-20	60-80	45-70	25-55	5-20	0-37	NP-10
	12-27	Very gravelly sand	SP, SP-SM, SC-SM	A-1	1-3	15-30	40-75	25-65	15-45	0-10	0-27	NP-4
	27-35	Very gravelly loamy fine sand, gravelly fine sandy loam	SC, SM, SC-SM	A-1, A-2-4, A-4	1-3	5-15	75-90	65-85	45-70	20-45	0-30	NP-12
	35-46	Gravelly fine sandy loam	SC, SM, SC-SM	A-2-4, A-4	1-3	5-15	70-85	70-80	50-65	25-45	15-30	1-12
	46-80	Gravelly sandy loam	SC, SM, SC-SM	A-1, A-2-4	1-4	5-15	70-85	60-75	35-55	20-30	15-30	1-12
Dishno----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-3	Cobbly very fine sandy loam	ML	A-4, A-2-4	0-7	5-15	80-95	80-90	55-80	35-55	20-40	1-12
	3-4	Cobbly very fine sandy loam	ML	A-4, A-2-4	4-7	5-20	80-95	80-90	55-80	30-55	16-33	1-12
	4-8	Cobbly very fine sandy loam	ML, SM	A-4, A-2-4	4-7	5-20	80-90	80-90	55-80	30-55	20-40	1-12
	8-26	Cobbly very fine sandy loam, cobbly fine sandy loam	ML, SM	A-4, A-2-4	4-7	5-20	80-95	75-90	50-75	30-50	16-35	1-12
	26-31	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-6	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	31-42	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-7	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	>42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
173E:												
Montreal--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	16-33	1-12
	6-11	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	20-40	1-12
	11-20	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-1, A-4, A-2-4	2-14	15-35	65-90	55-90	40-75	20-50	16-35	1-12
	20-33	Very cobbly loamy fine sand, very cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-12	15-45	40-90	25-85	20-70	5-45	0-25	NP-7
	33-51	Very cobbly fine sandy loam, very cobbly loamy fine sand	GP-GM, GM, SM, SC-SM	A-1, A-4, A-2-4, A-3	1-12	15-45	45-90	25-85	20-70	5-45	0-25	NP-7
	51-80	Cobbly loamy fine sand, cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-8	15-50	40-90	25-85	20-70	10-45	0-25	NP-7
Paavola---------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly loamy sand	SM, SC-SM, SC	A-1, A-2-4	2-4	10-15	60-80	50-70	25-55	5-20	0-37	NP-10
	6-12	Cobbly loamy sand	SM, SC-SM, SC	A-1, A-2-4	2-4	15-20	60-80	45-70	25-55	5-20	0-37	NP-10
	12-27	Very gravelly sand	SP, SP-SM, SC-SM	A-1	1-3	15-30	40-75	25-65	15-45	0-10	0-27	NP-4
	27-35	Very gravelly loamy fine sand, gravelly fine sandy loam	SC, SM, SC-SM	A-1, A-2-4, A-4	1-3	5-15	75-90	65-85	45-70	20-45	0-30	NP-12
	35-46	Gravelly fine sandy loam	SC, SM, SC-SM	A-2-4, A-4	1-3	5-15	70-85	70-80	50-65	25-45	15-30	1-12
	46-80	Gravelly sandy loam	SC, SM, SC-SM	A-1, A-2-4	1-4	5-15	70-85	60-75	35-55	20-30	15-30	1-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
173E:												
Dishno----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-3	Cobbly very fine sandy loam	ML	A-2-4, A-4	0-7	5-15	80-95	80-90	55-80	35-55	20-40	1-12
	3-4	Cobbly very fine sandy loam	ML	A-2-4, A-4	4-7	5-20	80-95	80-90	55-80	30-55	16-33	1-12
	4-8	Cobbly very fine sandy loam	ML, SM	A-2-4, A-4	4-7	5-20	80-90	80-90	55-80	30-55	20-40	1-12
	8-26	Cobbly very fine sandy loam, cobbly fine sandy loam	ML, SM	A-2-4, A-4	4-7	5-20	80-95	75-90	50-75	30-50	16-35	1-12
	26-31	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-6	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	31-42	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-7	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	>42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
174B:												
Montreal--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-6	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	16-33	1-12
	6-11	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-4, A-2-4	2-5	15-25	85-95	80-90	55-75	30-50	20-40	1-12
	11-20	Cobbly fine sandy loam	SM, SC-SM, ML, CL-ML	A-1, A-4, A-2-4	2-14	15-35	65-90	55-90	40-75	20-50	16-35	1-12
	20-33	Very cobbly loamy fine sand, very cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-12	15-45	40-90	25-85	20-70	5-45	0-25	NP-7
	33-51	Very cobbly fine sandy loam, very cobbly loamy fine sand	GP-GM, GM, SM, SC-SM	A-1, A-4, A-2-4, A-3	1-12	15-45	45-90	25-85	20-70	5-45	0-25	NP-7
	51-80	Cobbly loamy fine sand, cobbly fine sandy loam	GP-GM, GM, SM, SC-SM	A-1, A-2-4, A-4, A-3	1-8	15-50	40-90	25-85	20-70	10-45	0-25	NP-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
174B:												
Dishno----------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-3	Cobbly very fine sandy loam	ML	A-4, A-2-4	0-7	5-15	80-95	80-90	55-80	35-55	20-40	1-12
	3-4	Cobbly very fine sandy loam	ML	A-4, A-2-4	4-7	5-20	80-95	80-90	55-80	30-55	16-33	1-12
	4-8	Cobbly very fine sandy loam	ML, SM	A-4, A-2-4	4-7	5-20	80-90	80-90	55-80	30-55	20-40	1-12
	8-26	Cobbly very fine sandy loam, cobbly fine sandy loam	ML, SM	A-4, A-2-4	4-7	5-20	80-95	75-90	50-75	30-50	16-35	1-12
	26-31	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-6	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	31-42	Very cobbly loamy sand, cobbly loamy sand	SM	A-1, A-2-4	3-7	10-20	70-80	60-75	30-55	10-25	0-27	NP-10
	>42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
174B:												
Gratiot---------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-4	Very cobbly fine sandy loam, cobbly very fine sandy loam	ML, SC-SM	A-1, A-2-4	0-2	25-35	55-100	40-100	25-95	15-65	20-42	1-12
	4-7	Very cobbly loamy sand, cobbly loamy very fine sand, gravelly fine sandy loam	SM, SC, SC-SM	A-1, A-2-4	0-2	10-35	40-80	25-75	10-70	5-45	0-40	NP-12
	7-12	Very cobbly loamy sand, cobbly loamy very fine sand, gravelly fine sandy loam	SM, SC, SC-SM	A-1, A-2-4	0-2	10-35	40-80	25-75	10-70	5-45	0-35	NP-12
	12-20	Very cobbly fine sandy loam, gravelly very fine sandy loam, cobbly loamy sand	SM, SC, SC-SM	A-1, A-2-4	0-2	10-35	40-80	25-75	20-70	5-45	16-35	1-12
	20-30	Cobbly fine sandy loam, cobbly loamy fine sand, cobbly loamy sand, gravelly very fine sandy loam	SM, SC, SC-SM, ML	A-1, A-2-4	0-2	0-20	60-95	45-95	25-90	5-60	0-30	NP-12
	30-80	Cobbly fine sandy loam, cobbly loamy fine sand, cobbly loamy sand	SM, SC, SC-SM	A-1, A-2-4	0-10	0-25	55-80	35-75	20-65	5-40	0-30	NP-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
177A:												
Assinins--------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-11	Sand	SM	A-2-4, A-3	0	0-5	100	95-100	50-70	5-15	0-29	NP-6
	11-15	Sand	SM	A-2-4, A-3	0	0-5	100	95-100	50-70	5-15	0-29	NP-6
	15-24	Sand	SM	A-2-4, A-3	0	0-5	100	95-100	50-70	5-15	0-29	NP-6
	24-37	Sandy loam, loamy sand	SM, SC	A-2-4, A-4	0	0-5	95-100	85-100	50-75	15-40	16-30	2-12
	37-80	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0-5	95-100	85-100	60-70	30-40	16-30	2-12
183C:												
Munising--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-11	Fine sandy loam, loamy fine sand	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	40-85	10-50	0-26	NP-6
	11-13	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	20-33	1-6
	13-18	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	16-29	1-6
	18-31	Sandy loam, loamy sand	SC-SM, SC	A-2-4, A-4	0-3	0-8	90-100	85-95	40-90	10-50	18-26	4-9
	31-51	Sandy loam	SC-SM, SC	A-2-4, A-6, A-4	0-3	0-8	90-100	85-95	50-90	25-50	20-44	6-25
	51-80	Sandy loam	SM, SC-SM	A-2-4, A-4	0-3	0-8	90-100	85-95	50-85	25-50	17-25	3-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
183C:												
Abbaye----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-5	Fine sandy loam, sandy loam, loamy fine sand	SM, SC, SC-SM	A-4, A-2-4	0	0-7	90-100	85-100	50-85	25-55	0-31	NP-10
	5-11	Fine sandy loam, sandy loam	SM, SC-SM	A-4, A-2-4	0-1	0-6	85-100	80-100	45-85	20-50	16-29	1-6
	11-18	Gravelly fine sandy loam, gravelly sandy loam	SM, SC-SM	A-4, A-2-4	0-1	0-6	85-100	80-100	45-85	20-50	16-29	1-6
	18-28	Gravelly fine sandy loam, gravelly sandy loam, gravelly loamy fine sand	SC, SC-SM	A-4, A-2-4	0-4	0-3	65-80	55-75	35-65	15-40	18-27	4-10
	28-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	30-80	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Yalmer----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-6	Loamy sand	SM, SC, SC-SM	A-2-4	0	0-2	95-100	90-100	45-75	15-30	0-33	NP-10
	6-13	Loamy sand	SM, SC, SC-SM	A-2-4	0	0-2	95-100	90-100	45-75	15-30	0-37	NP-10
	13-28	Loamy sand	SM, SC-SM, SP-SM, SW-SM	A-2-4, A-3	0	0-3	85-95	80-90	40-70	10-25	0-33	NP-10
	28-43	Loamy sand, sandy loam	SM, SC, SC-SM	A-2-4	0	1-5	90-100	90-95	55-70	15-35	0-30	NP-12
	43-52	Sandy loam, loamy sand	SM, SC, SC-SM	A-2-4	0	1-5	90-95	90-95	45-70	15-35	0-30	NP-12
	52-80	Sandy loam	SC, SM, SC-SM	A-2-4, A-3	0	2-5	90-95	85-90	50-65	25-35	16-30	2-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
183E:												
Munising	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-11	Fine sandy loam, loamy fine sand	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	40-85	10-50	0-26	NP-6
	11-13	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	20-33	1-6
	13-18	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	16-29	1-6
	18-31	Sandy loam, loamy sand	SC-SM, SC	A-2-4, A-4	0-3	0-8	90-100	85-95	40-90	10-50	18-26	4-9
	31-51	Sandy loam	SC-SM, SC	A-2-4, A-6, A-4	0-3	0-8	90-100	85-95	50-90	25-50	20-44	6-25
	51-80	Sandy loam	SM, SC-SM	A-2-4, A-4	0-3	0-8	90-100	85-95	50-85	25-50	17-25	3-7
Abbaye	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-5	Fine sandy loam, sandy loam, loamy fine sand	SM, SC, SC-SM	A-4, A-2-4	0	0-7	90-100	85-100	50-85	25-55	0-31	NP-10
	5-11	Fine sandy loam, sandy loam	SM, SC-SM	A-4, A-2-4	0-1	0-6	85-100	80-100	45-85	20-50	16-29	1-6
	11-18	Gravelly fine sandy loam, gravelly sandy loam	SM, SC-SM	A-4, A-2-4	0-1	0-6	85-100	80-100	45-85	20-50	16-29	1-6
	18-28	Gravelly fine sandy loam, gravelly sandy loam, gravelly loamy fine sand	SC, SC-SM	A-4, A-2-4	0-4	0-3	65-80	55-75	35-65	15-40	18-27	4-10
	28-30	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	30-80	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
183E:												
Yalmer----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-6	Loamy sand	SM, SC, SC-SM	A-2-4	0	0-2	95-100	90-100	45-75	15-30	0-33	NP-10
	6-13	Loamy sand	SM, SC, SC-SM	A-2-4	0	0-2	95-100	90-100	45-75	15-30	0-37	NP-10
	13-28	Loamy sand	SM, SC-SM, SP-SM, SW-SM	A-2-4, A-3	0	0-3	85-95	80-90	40-70	10-25	0-33	NP-10
	28-43	Loamy sand, sandy loam	SM, SC, SC-SM	A-2-4	0	1-5	90-100	90-95	55-70	15-35	0-30	NP-12
	43-52	Sandy loam, loamy sand	SM, SC, SC-SM	A-2-4	0	1-5	90-95	90-95	45-70	15-35	0-30	NP-12
	52-80	Sandy loam	SC, SM, SC-SM	A-2-4, A-3	0	2-5	90-95	85-90	50-65	25-35	16-30	2-12
184C:												
Munising--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-11	Fine sandy loam, loamy fine sand	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	40-85	10-50	0-26	NP-6
	11-13	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	20-33	1-6
	13-18	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	16-29	1-6
	18-31	Sandy loam, loamy sand	SC-SM, SC	A-2-4, A-4	0-3	0-8	90-100	85-95	40-90	10-50	18-26	4-9
	31-51	Sandy loam	SC-SM, SC	A-2-4, A-6, A-4	0-3	0-8	90-100	85-95	50-90	25-50	20-44	6-25
	51-80	Sandy loam	SM, SC-SM	A-2-4, A-4	0-3	0-8	90-100	85-95	50-85	25-50	17-25	3-7
Yalmer----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-6	Loamy sand	SM, SC, SC-SM	A-2-4	0	0-2	95-100	90-100	45-75	15-30	0-33	NP-10
	6-13	Loamy sand	SM, SC, SC-SM	A-2-4	0	0-2	95-100	90-100	45-75	15-30	0-37	NP-10
	13-28	Loamy sand	SM, SC-SM, SP-SM, SW-SM	A-2-4, A-3	0	0-3	85-95	80-90	40-70	10-25	0-33	NP-10
	28-43	Loamy sand, sandy loam	SM, SC, SC-SM	A-2-4	0	1-5	90-100	90-95	55-70	15-35	0-30	NP-12
	43-52	Sandy loam, loamy sand	SM, SC, SC-SM	A-2-4	0	1-5	90-95	90-95	45-70	15-35	0-30	NP-12
	52-80	Sandy loam	SC, SM, SC-SM	A-2-4, A-3	0	2-5	90-95	85-90	50-65	25-35	16-30	2-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
184E:												
Munising--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-11	Fine sandy loam, loamy fine sand	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	40-85	10-50	0-26	NP-6
	11-13	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	20-33	1-6
	13-18	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	16-29	1-6
	18-31	Sandy loam, loamy sand	SC-SM, SC	A-2-4, A-4	0-3	0-8	90-100	85-95	40-90	10-50	18-26	4-9
	31-51	Sandy loam	SC-SM, SC	A-2-4, A-6, A-4	0-3	0-8	90-100	85-95	50-90	25-50	20-44	6-25
	51-80	Sandy loam	SM, SC-SM	A-2-4, A-4	0-3	0-8	90-100	85-95	50-85	25-50	17-25	3-7
Yalmer----------	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-6	Loamy sand	SM, SC, SC-SM	A-2-4	0	0-2	95-100	90-100	45-75	15-30	0-33	NP-10
	6-13	Loamy sand	SM, SC, SC-SM	A-2-4	0	0-2	95-100	90-100	45-75	15-30	0-37	NP-10
	13-28	Loamy sand	SM, SC-SM, SP-SM, SW-SM	A-2-4, A-3	0	0-3	85-95	80-90	40-70	10-25	0-33	NP-10
	28-43	Loamy sand, sandy loam	SM, SC, SC-SM	A-2-4	0	1-5	90-100	90-95	55-70	15-35	0-30	NP-12
	43-52	Sandy loam, loamy sand	SM, SC, SC-SM	A-2-4	0	1-5	90-95	90-95	45-70	15-35	0-30	NP-12
	52-80	Sandy loam	SC, SM, SC-SM	A-2-4, A-3	0	2-5	90-95	85-90	50-65	25-35	16-30	2-12

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
185B:												
Munising--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-11	Fine sandy loam, loamy fine sand	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	40-85	10-50	0-26	NP-6
	11-13	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	20-33	1-6
	13-18	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	16-29	1-6
	18-31	Sandy loam, loamy sand	SC-SM, SC	A-2-4, A-4	0-3	0-8	90-100	85-95	40-90	10-50	18-26	4-9
	31-51	Sandy loam	SC-SM, SC	A-2-4, A-6, A-4	0-3	0-8	90-100	85-95	50-90	25-50	20-44	6-25
	51-80	Sandy loam	SM, SC-SM	A-2-4, A-4	0-3	0-8	90-100	85-95	50-85	25-50	17-25	3-7
Skanee----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-8	Fine sandy loam, sandy loam, loamy sand, cobbly fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-24	85-100	80-100	40-85	10-50	0-33	NP-6
	8-14	Fine sandy loam, sandy loam, cobbly fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-24	85-100	80-100	50-85	25-50	0-33	NP-6
	14-31	Fine sandy loam, sandy loam, loamy sand	SM, SC-SM	A-4, A-2-4	0-3	0-15	90-100	85-100	40-85	10-50	15-25	1-7
	31-42	Sandy clay loam, fine sandy loam, sandy loam	SC, SC-SM, CL	A-2-6, A-6, A-2-4, A-4	0-3	0-15	90-100	85-95	50-90	25-50	20-44	6-25
	42-80	Sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0-3	0-15	90-100	85-95	50-85	25-50	17-25	3-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
185C:												
Munising--------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-4	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	4-11	Fine sandy loam, loamy fine sand	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	40-85	10-50	0-26	NP-6
	11-13	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	20-33	1-6
	13-18	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-8	90-100	85-95	50-85	25-50	16-29	1-6
	18-31	Sandy loam, loamy sand	SC-SM, SC	A-2-4, A-4	0-3	0-8	90-100	85-95	40-90	10-50	18-26	4-9
	31-51	Sandy loam	SC-SM, SC	A-2-4, A-6, A-4	0-3	0-8	90-100	85-95	50-90	25-50	20-44	6-25
	51-80	Sandy loam	SM, SC-SM	A-2-4, A-4	0-3	0-8	90-100	85-95	50-85	25-50	17-25	3-7
Skanee----------	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-8	Fine sandy loam, sandy loam, loamy sand, cobbly fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-24	85-100	80-100	40-85	10-50	0-33	NP-6
	8-14	Fine sandy loam, sandy loam, cobbly fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-24	85-100	80-100	50-85	25-50	0-33	NP-6
	14-31	Fine sandy loam, sandy loam, loamy sand	SM, SC-SM	A-4, A-2-4	0-3	0-15	90-100	85-100	40-85	10-50	15-25	1-7
	31-42	Sandy clay loam, fine sandy loam, sandy loam	SC, SC-SM, CL	A-2-6, A-6, A-2-4, A-4	0-3	0-15	90-100	85-95	50-90	25-50	20-44	6-25
	42-80	Sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0-3	0-15	90-100	85-95	50-85	25-50	17-25	3-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
187A:												
Skanee	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-8	Fine sandy loam, sandy loam, loamy sand, cobbly fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-24	85-100	80-100	40-85	10-50	0-33	NP-6
	8-14	Fine sandy loam, sandy loam, cobbly fine sandy loam	SM, SC-SM	A-4, A-2-4	0-3	0-24	85-100	80-100	50-85	25-50	0-33	NP-6
	14-31	Fine sandy loam, sandy loam, loamy sand	SM, SC-SM	A-4, A-2-4	0-3	0-15	90-100	85-100	40-85	10-50	15-25	1-7
	31-42	Sandy clay loam, fine sandy loam, sandy loam	SC, SC-SM, CL	A-2-6, A-6, A-2-4, A-4	0-3	0-15	90-100	85-95	50-90	25-50	20-44	6-25
	42-80	Sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0-3	0-15	90-100	85-95	50-85	25-50	17-25	3-7
Gay	0-4	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	4-7	Fine sandy loam, loamy sand, mucky sandy loam, cobbly sandy loam	SM	A-2-4, A-4	0-24	0-15	75-100	70-100	35-85	10-50	---	---
	7-11	Sandy loam, cobbly sandy loam, loamy sand	SM	A-2-4, A-4	0-24	0-15	75-100	70-100	35-75	10-40	0-26	NP-6
	11-16	Sandy loam, sandy clay loam, fine sandy loam	SM, SC	A-2-4, A-4	0-8	0-8	85-100	80-100	50-90	25-50	18-45	3-25
	16-30	Sandy loam	SM	A-2-4, A-4	0-8	0-8	85-100	80-100	45-70	20-40	17-25	3-7
	30-60	Sandy loam	SM	A-2-4, A-4	0-8	0-8	85-100	80-100	45-70	20-40	17-25	3-7

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
192B:												
Nipissing-------	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-4	Very cobbly fine sandy loam, very cobbly silt loam	GM, GC-GM	A-1, A-2-4	0-5	35-40	55-65	45-55	35-55	20-50	17-33	2-12
	4-20	Extremely cobbly fine sandy loam, extremely cobbly silt loam	GM, GC-GM	A-1, A-2-4	0-5	35-45	50-55	35-40	25-40	15-35	20-40	2-12
	20-29	Extremely cobbly fine sandy loam, extremely cobbly loam	GM, GC-GM	A-1, A-2-4	0-5	40-45	50-55	35-40	30-35	15-35	20-40	1-12
	29-35	Extremely cobbly fine sandy loam, extremely cobbly silt loam	GM, GC-GM	A-1, A-2-4	0-5	40-50	30-45	15-30	10-30	5-20	20-40	2-12
	35-39	Fragmental material, extremely cobbly loam	GM, GC-GM	A-1	0-5	65-75	20-40	0-20	0-20	0-15	0-33	NP-6
	>39	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
192B:												
Arcadian--------	0-3	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	3-5	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	16-31	1-10
	5-12	Very gravelly fine sandy loam, very gravelly loamy very fine sand	GC-GM, GM, SM	A-1, A-4, A-2-4	0-5	10-20	30-75	10-65	5-65	5-45	20-40	1-12
	12-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.--Engineering Index Properties--Continued

Map symbol and soil 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	
194B:												
Copper Harbor---	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-5	Very gravelly loamy coarse sand	GW, GP, GM	A-2-4, A-4, A-1	0	5-15	30-60	10-45	5-35	0-15	8-20	NP-5
	5-14	Extremely gravelly loamy coarse sand, very gravelly coarse sand	GW, GP, GM	A-4, A-1, A-2-4	0	5-15	30-55	10-40	5-30	5-15	8-20	NP-5
	14-30	Extremely gravelly coarse sand, very gravelly coarse sand	GW, GP, GM	A-4, A-1, A-2-4	0	5-15	35-50	15-40	10-30	5-10	8-15	NP-5
	30-40	Very gravelly coarse sand, very gravelly loamy coarse sand, very gravelly sand	GW, GP, GC-GM	A-4, A-1, A-2-4	0	5-15	50-60	35-45	20-35	5-15	8-15	NP-5
	40-60	Very gravelly sand, very gravelly loamy sand, gravelly loamy coarse sand	GW, GP, GM	A-4, A-1, A-2-4	0	5-20	30-60	15-45	5-35	5-15	7-15	NP-5
	60-80	Very cobbly loamy coarse sand	GW, GP, GM	A-4, A-1, A-2-4	0	15-20	30-65	15-45	5-35	5-15	7-20	NP-5

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
195B:												
Copper Harbor---	0-1	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	1-5	Very gravelly loamy coarse sand	GW, GP, GM	A-4, A-2-4, A-1	0	5-15	30-60	10-45	5-35	0-15	8-20	NP-5
	5-14	Extremely gravelly loamy coarse sand, very gravelly coarse sand	GW, GP, GM	A-4, A-1, A-2-4	0	5-15	30-55	10-40	5-30	5-15	8-20	NP-5
	14-30	Extremely gravelly coarse sand, very gravelly coarse sand	GW, GP, GM	A-4, A-1, A-2-4	0	5-15	35-50	15-40	10-30	5-10	8-15	NP-5
	30-40	Very gravelly coarse sand, very gravelly loamy coarse sand, very gravelly sand	GW, GP, GC-GM	A-4, A-1, A-2-4	0	5-15	50-60	35-45	20-35	5-15	8-15	NP-5
	40-60	Very gravelly sand, very gravelly loamy sand, gravelly loamy coarse sand	GW, GP, GM	A-4, A-1, A-2-4	0	5-20	30-60	15-45	5-35	5-15	7-15	NP-5
	60-80	Very cobbly loamy coarse sand	GW, GP, GM	A-4, A-1, A-2-4	0	15-20	30-65	15-45	5-35	5-15	7-20	NP-5

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
195B:												
Bete Grise------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-5	Very gravelly loamy sand, very gravelly coarse sandy loam	GC-GM, SP-SM, SW-SM	A-1, A-2-4	0	5-20	40-75	25-70	15-50	5-20	0-31	NP-10
	5-17	Very gravelly loamy coarse sand, very gravelly coarse sandy loam	GC-GM, SP-SM, GM, SW-SM	A-1, A-2-4	0	5-20	40-70	25-60	5-45	5-20	0-40	NP-12
	17-32	Very gravelly coarse sand, extremely gravelly sand, extremely gravelly coarse sand	GC-GM, SP-SM, GW, SW-SM	A-1, A-2-4	0	0-20	40-70	15-55	5-40	0-20	0-33	NP-6
	32-36	Extremely gravelly coarse sand, very gravelly loamy coarse sand	GC-GM, SW-SM, GW	A-1, A-2-4	0	0-10	40-55	20-55	10-25	0-10	0-33	NP-12
	36-59	Very gravelly sand, extremely gravelly sand, very gravelly loamy sand	GC-GM, SP-SM, GW, SW-SM	A-1, A-2-4	0-10	5-15	30-60	5-50	5-35	0-20	0-27	NP-10
	59-80	Very cobbly sand, extremely gravelly sand	GC-GM, SP-SM, GW, SW-SM	A-1, A-2-4	0-10	20-35	5-65	5-35	5-30	0-10	0-23	NP-6

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
196B:												
Bete Grise------	0-2	Highly decomposed plant material	PT	A-8	0	0	100	100	100	90-100	---	---
	2-5	Very gravelly loamy sand, very gravelly coarse sandy loam	GC-GM, SP-SM, SW-SM	A-1, A-2-4	0	5-20	40-75	25-70	15-50	5-20	0-31	NP-10
	5-17	Very gravelly loamy coarse sand, very gravelly coarse sandy loam	GC-GM, SP-SM, GM, SW-SM	A-1, A-2-4	0	5-20	40-70	25-60	5-45	5-20	0-40	NP-12
	17-32	Very gravelly coarse sand, extremely gravelly sand, extremely gravelly coarse sand	GC-GM, SP-SM, GW, SW-SM	A-1, A-2-4	0	0-20	40-70	15-55	5-40	0-20	0-33	NP-6
	32-36	Extremely gravelly coarse sand, very gravelly loamy coarse sand	GC-GM, SW-SM, GW	A-1, A-2-4	0	0-10	40-55	20-55	10-25	0-10	0-33	NP-12
	36-59	Very gravelly sand, extremely gravelly sand, very gravelly loamy sand	GC-GM, SP-SM, GW, SW-SM	A-1, A-2-4	0-10	5-15	30-60	5-50	5-35	0-20	0-27	NP-10
	59-80	Very cobbly sand, extremely gravelly sand	GC-GM, SP-SM, GW, SW-SM	A-1, A-2-4	0-10	20-35	5-65	5-35	5-30	0-10	0-23	NP-6
Tawas-----------	0-6	Muck	PT	A-8	0	0	100	100	100	90-100	---	---
	6-25	Muck	PT	A-8	0	0	100	100	90-100	40-100	---	---
	25-80	Sand, fine sand, loamy sand	SM, SP-SM, SP	A-3, A-2-4	0	0	90-100	85-100	40-95	0-30	0-18	NP-2

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
301:												
Udorthents------	0-79	Sandy loam, fine sandy loam	SC-SM	A-4, A-2-4	0-5	0-10	90-100	85-100	50-85	25-55	20-36	6-17
Udipsamments----	0-79	Sand, loamy sand	SP, SP-SM	A-3, A-2-4	0	0	100	90-100	45-70	0-15	0-23	NP-6
302:												
Histosols-------	0-51	Muck	PT	A-8	0	0	100	100	100	90-100	---	NP
	51-80	Variable	---	---	---	---	---	---	---	---	---	---
Aquents---------	0-79	Variable	CL	---	0-1	0-1	85-100	75-95	65-85	50-70	---	---
303:												
Aquents---------	0-79	Variable	CL	---	0-1	0-1	85-100	75-95	65-85	50-70	---	---
Dumps, stamp sand-----------	0-80	Sand	SW-SM	A-2-4, A-3	0	0	100	100	45-70	5-15	0-18	NP-2
310. Dumps, mine												
311:												
Dumps, stamp sand-----------	0-80	Sand	SW-SM	A-2-4, A-3	0	0	100	100	45-70	5-15	0-18	NP-2
312. Pits												
313. Dumps, sawdust												
W. Water												

Table 16.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
2:											
Lupton----------	0-8	---	0.10-0.35	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	8-80	---	0.10-0.35	0.20-6.00	0.35-0.45	---	---	---			
Tawas-----------	0-6	---	0.30-0.55	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	6-25	---	0.30-0.55	0.20-6.00	0.24-0.45	---	---	---			
	25-80	0-5	1.40-1.65	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15			
3:											
Dawson----------	0-6	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	2	7	38
	6-38	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	38-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Loxley----------	0-5	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	5	56
	5-26	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	26-45	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	45-80	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---			
6:											
Skandia---------	0-5	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	2	5	56
	5-33	---	0.20-0.30	0.60-6.00	0.35-0.45	---	---	---			
	33-41	---	---	---	---	---	---	---			
	41-80	---	---	0.00-0.20	---	---	---	---			
Burt------------	0-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	2	134
	4-6	0-10	0.90-1.50	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
	6-12	0-10	1.50-1.70	6.00-20.00	0.04-0.10	0.0-3.0	.15	.15			
	12-17	0-10	1.50-1.70	6.00-20.00	0.04-0.10	0.0-3.0	.15	.15			
	>17	---	---	---	---	---	---	---			
10:											
Cathro----------	0-16	---	0.15-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	16-34	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	34-80	5-25	1.70-1.80	0.60-2.00	0.16-0.18	0.0-3.0	.20	.28			
Sabattis--------	0-8	---	0.20-0.30	0.16-6.00	0.35-0.45	---	---	---	5	5	56
	8-12	5-18	1.25-1.60	0.60-2.00	0.08-0.10	0.0-2.9	.15	.37			
	12-17	5-18	1.25-1.60	0.60-2.00	0.13-0.15	0.0-2.9	.15	.43			
	17-32	5-18	1.55-1.75	0.60-2.00	0.12-0.14	0.0-2.9	.28	.43			
	32-37	5-18	1.55-1.75	0.20-2.00	0.09-0.11	0.0-2.9	.10	.20			
	37-80	5-18	1.55-1.75	0.20-2.00	0.07-0.09	0.0-2.9	.05	.20			
13:											
Tawas-----------	0-6	---	0.30-0.55	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	6-25	---	0.30-0.55	0.20-6.00	0.24-0.45	---	---	---			
	25-80	0-5	1.40-1.65	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15			
Deford----------	0-6	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	6-8	0-5	1.35-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.17	.17			
	8-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
15B:											
Dawson----------	0-6	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	2	7	38
	6-38	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	38-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
15B:											
Croswell--------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-11	0-5	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-21	0-5	1.40-1.60	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	21-34	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	34-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
20E.											
Rock outcrop											
21G:											
Rock outcrop.											
Arcadian--------	0-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	8	0
	3-5	4-15	1.30-1.60	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	5-12	4-18	1.35-1.70	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	12-22	---	---	---	---	---	---	---			
39A:											
Betsy Bay-------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	1	250
	1-18	0-8	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.10	.15			
	18-26	0-15	1.30-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.10	.15			
	26-43	0-8	1.50-1.60	6.00-20.00	0.05-0.09	0.0-2.9	.10	.15			
	>43	---	---	0.00-0.20	---	---	---	---			
Burt------------	0-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	2	134
	4-6	0-10	0.90-1.50	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
	6-12	0-10	1.50-1.70	6.00-20.00	0.04-0.10	0.0-3.0	.15	.15			
	12-17	0-10	1.50-1.70	6.00-20.00	0.04-0.10	0.0-3.0	.15	.15			
	>17	---	---	---	---	---	---	---			
Deford----------	0-6	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	6-8	0-5	1.35-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.17	.17			
	8-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
47A:											
Zeba------------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	3	86
	2-3	3-18	1.30-1.65	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	3-9	4-18	1.35-1.70	0.60-2.00	0.15-0.17	0.0-2.9	.24	.24			
	9-14	3-18	1.30-1.70	0.60-2.00	0.14-0.16	0.0-2.9	.20	.20			
	14-25	3-18	1.30-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.17	.24			
	25-27	---	---	0.00-0.20	---	---	---	---			
	>27	---	---	0.00-0.20	---	---	---	---			
Jacobsville-----	0-5	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	3	86
	5-12	4-18	1.10-1.35	0.60-2.00	0.15-0.19	0.0-2.9	.17	.24			
	12-20	4-18	1.50-1.85	0.60-2.00	0.12-0.16	0.0-2.9	.15	.24			
	20-21	4-18	1.70-1.80	0.60-2.00	0.11-0.15	0.0-2.9	.10	.24			
	21-22	---	---	---	---	---	---	---			
	>22	---	---	0.00-0.20	---	---	---	---			
51C:											
Arcadian--------	0-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	8	0
	3-5	4-15	1.30-1.60	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	5-12	4-18	1.35-1.70	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	12-22	---	---	---	---	---	---	---			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
51C:											
Nipissing-------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	4	8	0
	1-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	3-4	5-18	1.30-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.24	.05			
	4-20	5-18	1.35-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.24	.05			
	20-29	4-18	1.35-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.24	.05			
	29-35	5-18	1.35-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.24	.02			
	35-39	0-10	1.35-1.70	>20.00	0.01-0.01	0.0-2.9	.02	.02			
	>39	---	---	---	---	---	---	---			
Rock outcrop.											
51E:											
Arcadian--------	0-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	8	0
	3-5	4-15	1.30-1.60	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	5-12	4-18	1.35-1.70	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	12-22	---	---	---	---	---	---	---			
Nipissing-------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	4	8	0
	1-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	3-4	5-18	1.30-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.24	.05			
	4-20	5-18	1.35-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.24	.05			
	20-29	4-18	1.35-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.24	.05			
	29-35	5-18	1.35-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.24	.02			
	35-39	0-10	1.35-1.70	>20.00	0.01-0.01	0.0-2.9	.02	.02			
	>39	---	---	---	---	---	---	---			
Rock outcrop.											
52C:											
Arcadian--------	0-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	8	0
	3-5	4-15	1.30-1.60	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	5-12	4-18	1.35-1.70	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	12-22	---	---	---	---	---	---	---			
Dishno----------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	4	86
	1-3	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	3-4	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	4-8	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	8-26	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	26-31	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	31-42	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	>42	---	---	0.01-0.06	---	---	---	---			
Rock outcrop.											
52E:											
Arcadian--------	0-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	8	0
	3-5	4-15	1.30-1.60	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	5-12	4-18	1.35-1.70	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	12-22	---	---	---	---	---	---	---			
Dishno----------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	4	86
	1-3	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	3-4	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	4-8	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	8-26	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	26-31	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	31-42	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	>42	---	---	0.01-0.06	---	---	---	---			
Rock outcrop.											

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
53E:											
Arcadian--------	0-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	8	0
	3-5	4-15	1.30-1.60	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	5-12	4-18	1.35-1.70	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	12-22	---	---	---	---	---	---	---			
Michigamme------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	1	310
	1-4	3-10	1.25-1.60	0.60-2.00	0.08-0.15	0.0-2.9	.17	.24			
	4-10	3-15	1.35-1.60	0.60-2.00	0.07-0.22	0.0-2.9	.28	.37			
	10-22	3-15	1.35-1.60	0.60-2.00	0.07-0.22	0.0-2.9	.28	.37			
	22-30	3-10	1.50-1.85	0.60-2.00	0.05-0.16	0.0-2.9	.20	.28			
	>30	---	---	---	---	---	---	---			
Rock outcrop.											
53F:											
Arcadian--------	0-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	8	0
	3-5	4-15	1.30-1.60	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	5-12	4-18	1.35-1.70	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	12-22	---	---	---	---	---	---	---			
Michigamme------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	1	310
	1-4	3-10	1.25-1.60	0.60-2.00	0.08-0.15	0.0-2.9	.17	.24			
	4-10	3-15	1.35-1.60	0.60-2.00	0.07-0.22	0.0-2.9	.28	.37			
	10-22	3-15	1.35-1.60	0.60-2.00	0.07-0.22	0.0-2.9	.28	.37			
	22-30	3-10	1.50-1.85	0.60-2.00	0.05-0.16	0.0-2.9	.20	.28			
	>30	---	---	---	---	---	---	---			
Rock outcrop.											
55B:											
Chocolay--------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	2-11	4-18	1.30-1.60	0.60-2.00	0.05-0.10	0.0-2.9	.15	.28			
	11-13	4-18	1.35-1.70	0.60-2.00	0.05-0.10	0.0-2.9	.10	.24			
	13-18	4-18	1.35-1.70	0.60-2.00	0.03-0.60	0.0-2.9	.05	.28			
	18-21	4-18	1.50-1.60	6.00-20.00	0.05-0.14	0.0-2.9	.10	.24			
	>21	---	---	0.00-0.20	---	---	---	---			
100B:											
Waiska----------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	2	134
	1-7	3-15	1.35-1.65	>20.00	0.03-0.11	0.0-2.9	.15	.15			
	7-23	3-12	1.35-1.70	>20.00	0.03-0.07	0.0-2.9	.05	.10			
	23-35	0-8	1.40-1.65	>20.00	0.01-0.04	0.0-2.9	.05	.10			
	35-60	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
	60-80	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
100D:											
Waiska----------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	2	134
	1-7	3-15	1.35-1.65	20.00-28.98	0.03-0.11	0.0-2.9	.15	.15			
	7-23	3-12	1.35-1.70	20.00-30.96	0.03-0.07	0.0-2.9	.05	.10			
	23-35	0-8	1.40-1.65	20.00-30.76	0.01-0.04	0.0-2.9	.05	.10			
	35-60	0-8	1.55-1.65	20.00-28.17	0.01-0.02	0.0-2.9	.02	.10			
	60-80	0-8	1.55-1.65	20.00-28.98	0.01-0.02	0.0-2.9	.02	.10			
102C:											
Waiska----------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	2	134
	1-7	3-15	1.35-1.65	>20.00	0.03-0.11	0.0-2.9	.15	.15			
	7-23	3-12	1.35-1.70	>20.00	0.03-0.07	0.0-2.9	.05	.10			
	23-35	0-8	1.40-1.65	>20.00	0.01-0.04	0.0-2.9	.05	.10			
	35-60	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
	60-80	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	g/cc	In/hr	In/in	Pct					
102C:											
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
102E:											
Waiska----------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	2	134
	1-7	3-15	1.35-1.65	>20.00	0.03-0.11	0.0-2.9	.15	.15			
	7-23	3-12	1.35-1.70	>20.00	0.03-0.07	0.0-2.9	.05	.10			
	23-35	0-8	1.40-1.65	>20.00	0.01-0.04	0.0-2.9	.05	.10			
	35-60	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
	60-80	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
102F:											
Waiska----------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	2	134
	1-7	3-15	1.35-1.65	>20.00	0.03-0.11	0.0-2.9	.15	.15			
	7-23	3-12	1.35-1.70	>20.00	0.03-0.07	0.0-2.9	.05	.10			
	23-35	0-8	1.40-1.65	>20.00	0.01-0.04	0.0-2.9	.05	.10			
	35-60	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
	60-80	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
110B:											
Shelldrake------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	5	1	220
	1-6	0-4	1.30-1.55	>20.00	0.04-0.06	0.0-2.9	.15	.15			
	6-13	0-4	1.55-1.65	>20.00	0.04-0.06	0.0-2.9	.15	.15			
	13-23	0-4	1.55-1.65	>20.00	0.03-0.05	0.0-2.9	.15	.15			
	23-80	0-4	1.55-1.65	>20.00	0.02-0.04	0.0-2.9	.15	.15			
Croswell--------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-11	0-5	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-21	0-5	1.40-1.60	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	21-34	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	34-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
111B:											
Deer Park-------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	5	1	250
	1-8	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	8-17	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	17-24	0-5	1.40-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	24-35	0-5	1.40-1.55	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	35-80	0-5	1.40-1.55	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
111D:											
Deer Park-------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	5	1	250
	1-8	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	8-17	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	17-24	0-5	1.40-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	24-35	0-5	1.40-1.55	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	35-80	0-5	1.40-1.55	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
111E:											
Deer Park-------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	5	1	250
	1-8	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	8-17	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	17-24	0-5	1.40-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	24-35	0-5	1.40-1.55	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	35-80	0-5	1.40-1.55	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
111F:											
Deer Park-------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	5	1	250
	1-8	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	8-17	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	17-24	0-5	1.40-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	24-35	0-5	1.40-1.55	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	35-80	0-5	1.40-1.55	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
112C:											
Deer Park-------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	5	1	250
	1-8	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	8-17	0-5	1.40-1.60	6.00-20.00	0.06-0.11	0.0-2.9	.15	.15			
	17-24	0-5	1.40-1.60	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	24-35	0-5	1.40-1.55	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	35-80	0-5	1.40-1.55	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Croswell--------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-11	0-5	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-21	0-5	1.40-1.60	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	21-34	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	34-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
113C:											
Rubicon---------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-7	0-5	1.30-1.55	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	7-34	0-5	1.30-1.60	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	34-44	0-5	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	44-80	0-5	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Croswell--------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-11	0-5	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-21	0-5	1.40-1.60	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	21-34	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	34-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
120B:											
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
120D:											
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
120E:											
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
125A:											
Croswell--------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-11	0-5	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-21	0-5	1.40-1.60	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	21-34	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	34-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Au Gres---------	0-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	4-13	0-8	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.10	.15			
	13-19	0-8	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.10	.15			
	19-28	0-8	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.10	.15			
	28-34	0-8	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.10	.15			
	34-80	0-8	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.10	.15			
126B:											
Au Gres---------	0-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	4-13	0-8	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.10	.15			
	13-19	0-8	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.10	.15			
	19-28	0-8	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.10	.15			
	28-34	0-8	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.10	.15			
	34-80	0-8	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.10	.15			
Deford----------	0-6	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	6-8	0-5	1.35-1.60	6.00-20.00	0.05-0.07	0.0-2.9	.17	.17			
	8-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
Croswell--------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-11	0-5	1.30-1.55	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	11-21	0-5	1.40-1.60	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	21-34	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
	34-80	0-5	1.50-1.65	6.00-20.00	0.05-0.07	0.0-2.9	.15	.15			
127A:											
Au Gres---------	0-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	4-13	0-8	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.10	.15			
	13-19	0-8	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.10	.15			
	19-28	0-8	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.10	.15			
	28-34	0-8	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.10	.15			
	34-80	0-8	1.50-1.70	6.00-20.00	0.05-0.07	0.0-2.9	.10	.15			
Kinross---------	0-2	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	7	38
	2-6	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	6-16	0-5	1.30-1.55	6.00-20.00	0.07-0.10	0.0-2.9	.15	.15			
	16-32	0-5	1.40-1.65	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	32-80	0-5	1.55-1.65	6.00-20.00	0.04-0.08	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
130C:											
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Alcona----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	3	86
	1-4	3-18	1.35-1.70	0.60-2.00	0.10-0.17	0.0-2.9	.20	.24			
	4-7	3-18	1.35-1.70	0.60-2.00	0.10-0.17	0.0-2.9	.20	.24			
	7-29	3-18	1.35-1.70	0.60-2.00	0.08-0.17	0.0-2.9	.15	.17			
	29-40	3-18	1.35-1.70	0.60-2.00	0.13-0.20	0.0-2.9	.24	.24			
	40-46	3-18	1.50-1.70	0.60-2.00	0.08-0.20	0.0-2.9	.24	.24			
	46-69	3-15	1.35-1.70	0.60-2.00	0.09-0.14	0.0-2.9	.20	.24			
	69-80	0-8	1.50-1.70	0.60-2.00	0.08-0.20	0.0-2.9	.24	.24			
130E:											
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Alcona----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	3	86
	1-4	3-18	1.35-1.70	0.60-2.00	0.10-0.17	0.0-2.9	.20	.24			
	4-7	3-18	1.35-1.70	0.60-2.00	0.10-0.17	0.0-2.9	.20	.24			
	7-29	3-18	1.35-1.70	0.60-2.00	0.08-0.17	0.0-2.9	.15	.17			
	29-40	3-18	1.35-1.70	0.60-2.00	0.13-0.20	0.0-2.9	.24	.24			
	40-46	3-18	1.50-1.70	0.60-2.00	0.08-0.20	0.0-2.9	.24	.24			
	46-69	3-15	1.35-1.70	0.60-2.00	0.09-0.14	0.0-2.9	.20	.24			
	69-80	0-8	1.50-1.70	0.60-2.00	0.08-0.20	0.0-2.9	.24	.24			
133C:											
Keweenaw--------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-11	3-15	1.45-1.65	0.60-6.00	0.09-0.13	0.0-2.9	.17	.17			
	11-17	3-15	1.45-1.80	0.60-6.00	0.09-0.13	0.0-2.9	.17	.17			
	17-39	4-18	1.45-1.75	0.60-6.00	0.08-0.12	0.0-2.9	.15	.17			
	39-61	4-18	1.50-1.70	0.60-6.00	0.04-0.07	0.0-2.9	.24	.24			
	61-80	3-18	1.50-1.70	0.60-6.00	0.08-0.10	0.0-2.9	.17	.17			
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
133E:											
Keweenaw--------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-11	3-15	1.45-1.65	0.60-6.00	0.09-0.13	0.0-2.9	.17	.17			
	11-17	3-15	1.45-1.80	0.60-6.00	0.09-0.13	0.0-2.9	.17	.17			
	17-39	4-18	1.45-1.75	0.60-6.00	0.08-0.12	0.0-2.9	.15	.17			
	39-61	4-18	1.50-1.70	0.60-6.00	0.04-0.07	0.0-2.9	.24	.24			
	61-80	3-18	1.50-1.70	0.60-6.00	0.08-0.10	0.0-2.9	.17	.17			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
133E:											
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
133F:											
Keweenaw--------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-11	3-15	1.45-1.65	0.60-6.00	0.09-0.13	0.0-2.9	.17	.17			
	11-17	3-15	1.45-1.80	0.60-6.00	0.09-0.13	0.0-2.9	.17	.17			
	17-39	4-18	1.45-1.75	0.60-6.00	0.08-0.12	0.0-2.9	.15	.17			
	39-61	4-18	1.50-1.70	0.60-6.00	0.04-0.07	0.0-2.9	.24	.24			
	61-80	3-18	1.50-1.70	0.60-6.00	0.08-0.10	0.0-2.9	.17	.17			
Garlic----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	1-7	0-10	1.30-1.55	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-10	1.60-1.70	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	13-20	0-10	1.60-1.80	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	20-27	0-10	1.60-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	27-46	0-10	1.55-1.75	6.00-20.00	0.06-0.09	0.0-2.9	.15	.15			
	46-80	0-10	1.55-1.75	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
136B:											
Borgstrom-------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-8	0-10	1.30-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	8-11	0-10	1.75-2.00	0.60-6.00	0.03-0.05	0.0-2.9	.15	.15			
	11-18	0-10	1.75-2.00	0.60-6.00	0.03-0.05	0.0-2.9	.15	.15			
	18-21	0-10	1.30-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	21-24	0-8	1.30-1.65	6.00-20.00	0.06-0.08	0.0-2.9	.15	.15			
	24-80	0-25	1.50-1.80	0.60-6.00	0.05-0.20	0.0-2.9	.28	.28			
Ingalls---------	0-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	4-5	0-8	1.20-1.55	6.00-20.00	0.06-0.09	0.0-3.0	.15	.15			
	5-14	0-10	1.20-1.55	6.00-20.00	0.06-0.12	0.0-3.0	.15	.15			
	14-16	0-10	1.35-1.65	6.00-20.00	0.05-0.11	0.0-3.0	.15	.15			
	16-35	0-10	1.35-1.65	6.00-20.00	0.05-0.11	0.0-3.0	.15	.15			
	35-80	0-15	1.65-1.80	0.20-0.60	0.14-0.22	0.0-3.0	.43	.43			
142C:											
Wallace---------	0-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	1	220
	4-5	0-5	1.35-1.45	6.00-20.00	0.07-0.10	0.0-2.9	.15	.15			
	5-22	0-5	1.35-1.45	6.00-20.00	0.07-0.10	0.0-2.9	.15	.15			
	22-31	0-5	1.75-2.05	0.60-6.00	0.06-0.09	0.0-2.9	.15	.15			
	31-37	0-5	1.75-2.05	0.60-6.00	0.06-0.09	0.0-2.9	.15	.15			
	37-62	0-5	1.45-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	62-74	0-5	1.45-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	74-80	0-5	1.45-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Rubicon---------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-7	0-5	1.30-1.55	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	7-34	0-5	1.30-1.60	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	34-44	0-5	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	44-80	0-5	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
142F:											
Wallace---------	0-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	1	220
	4-5	0-5	1.35-1.45	6.00-20.00	0.07-0.10	0.0-2.9	.15	.15			
	5-22	0-5	1.35-1.45	6.00-20.00	0.07-0.10	0.0-2.9	.15	.15			
	22-31	0-5	1.75-2.05	0.60-6.00	0.06-0.09	0.0-2.9	.15	.15			
	31-37	0-5	1.75-2.05	0.60-6.00	0.06-0.09	0.0-2.9	.15	.15			
	37-62	0-5	1.45-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	62-74	0-5	1.45-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	74-80	0-5	1.45-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
Rubicon---------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	1	220
	1-7	0-5	1.30-1.55	6.00-20.00	0.06-0.10	0.0-2.9	.15	.15			
	7-34	0-5	1.30-1.60	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15			
	34-44	0-5	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
	44-80	0-5	1.50-1.60	6.00-20.00	0.05-0.08	0.0-2.9	.15	.15			
155C:											
Montreal--------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	4	86
	2-6	4-18	1.30-1.60	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	6-11	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	11-20	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	20-33	2-12	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.05	.17			
	33-51	2-12	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.10	.24			
	51-80	0-12	1.55-1.75	0.60-6.00	0.03-0.06	0.0-2.9	.05	.17			
Paavola---------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	2-6	3-15	1.30-1.60	>20.00	0.07-0.10	0.0-2.9	.10	.17			
	6-12	3-15	1.40-1.65	>20.00	0.07-0.10	0.0-2.9	.05	.17			
	12-27	0-8	1.40-1.65	>20.00	0.02-0.05	0.0-2.9	.05	.15			
	27-35	3-18	1.80-2.10	0.01-0.06	0.07-0.10	0.0-2.9	.10	.17			
	35-46	4-18	1.80-2.10	0.01-0.06	0.07-0.09	0.0-2.9	.10	.24			
	46-80	4-18	1.60-1.80	0.01-0.06	0.07-0.09	0.0-2.9	.10	.24			
Waiska----------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	2	134
	1-7	3-15	1.35-1.65	>20.00	0.03-0.11	0.0-2.9	.15	.15			
	7-23	3-12	1.35-1.70	>20.00	0.03-0.07	0.0-2.9	.05	.10			
	23-35	0-8	1.40-1.65	>20.00	0.01-0.04	0.0-2.9	.05	.10			
	35-60	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
	60-80	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
155E:											
Montreal--------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	4	86
	2-6	4-18	1.30-1.60	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	6-11	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	11-20	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	20-33	2-12	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.05	.17			
	33-51	2-12	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.10	.24			
	51-80	0-12	1.55-1.75	0.60-6.00	0.03-0.06	0.0-2.9	.05	.17			
Paavola---------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	2-6	3-15	1.30-1.60	>20.00	0.07-0.10	0.0-2.9	.10	.17			
	6-12	3-15	1.40-1.65	>20.00	0.07-0.10	0.0-2.9	.05	.17			
	12-27	0-8	1.40-1.65	>20.00	0.02-0.05	0.0-2.9	.05	.15			
	27-35	3-18	1.80-2.10	0.01-0.06	0.07-0.10	0.0-2.9	.10	.17			
	35-46	4-18	1.80-2.10	0.01-0.06	0.07-0.09	0.0-2.9	.10	.24			
	46-80	4-18	1.60-1.80	0.01-0.06	0.07-0.09	0.0-2.9	.10	.24			
Waiska----------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	2	134
	1-7	3-15	1.35-1.65	>20.00	0.03-0.11	0.0-2.9	.15	.15			
	7-23	3-12	1.35-1.70	>20.00	0.03-0.07	0.0-2.9	.05	.10			
	23-35	0-8	1.40-1.65	>20.00	0.01-0.04	0.0-2.9	.05	.10			
	35-60	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
	60-80	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
158A:											
Arnheim---------	0-4	4-18	1.15-1.60	0.60-6.00	0.12-0.35	0.0-2.9	.37	.37	5	2	134
	4-9	4-18	1.50-1.80	0.60-2.00	0.17-0.19	0.0-2.9	.43	.43			
	9-22	5-18	1.50-1.80	0.60-2.00	0.20-0.22	0.0-2.9	.43	.43			
	22-35	4-18	1.50-1.80	0.60-2.00	0.14-0.22	0.0-2.9	.24	.24			
	35-50	4-18	1.50-1.80	0.60-2.00	0.14-0.16	0.0-2.9	.24	.24			
	50-60	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.17	.17			
Sturgeon--------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	2-16	4-20	1.50-1.70	0.60-2.00	0.22-0.24	0.0-2.9	.28	.28			
	16-42	3-15	1.50-1.70	6.00-20.00	0.08-0.11	0.0-2.9	.28	.28			
	42-48	4-18	1.50-1.70	0.60-2.00	0.14-0.16	0.0-2.9	---	---			
	48-60	3-15	1.50-1.65	6.00-20.00	0.09-0.11	0.0-2.9	.15	.15			
Pelkie----------	0-6	5-12	1.30-1.55	6.00-20.00	0.11-0.14	0.0-2.9	.17	.17	5	2	134
	6-22	0-10	1.25-1.65	6.00-20.00	0.08-0.11	0.0-2.9	.17	.17			
	22-80	0-10	1.25-1.65	6.00-20.00	0.11-0.15	0.0-2.9	.17	.17			
161F:											
Trimountain-----	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	3	4	86
	2-6	4-18	1.30-1.60	0.60-2.00	0.10-0.14	0.0-2.9	.15	.24			
	6-11	3-18	1.35-1.65	0.60-2.00	0.10-0.14	0.0-2.9	.15	.24			
	11-20	3-18	1.35-1.65	0.60-2.00	0.10-0.14	0.0-2.9	.15	.24			
	20-33	3-18	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.10	.17			
	33-51	3-18	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.10	.24			
	51-80	3-18	1.70-1.90	0.60-6.00	0.02-0.05	0.0-2.9	.10	.17			
Lac La Belle----	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	3	86
	1-5	3-18	1.30-1.60	6.00-28.57	0.04-0.08	0.0-2.9	.05	.17			
	5-12	3-18	1.40-1.65	6.00-30.76	0.04-0.07	0.0-2.9	.05	.17			
	12-36	3-15	1.40-1.65	6.00-31.16	0.02-0.05	0.0-2.9	.05	.17			
	36-42	3-18	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.05	.17			
	42-50	3-15	1.80-2.10	0.01-0.06	0.04-0.08	0.0-2.9	.05	.17			
	50-62	3-18	1.80-2.10	0.01-0.06	0.04-0.08	0.0-2.9	.05	.24			
	62-80	3-15	1.55-1.75	0.60-6.00	0.03-0.07	0.0-2.9	.05	.17			
Waiska----------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	5	2	134
	1-7	3-15	1.35-1.65	>20.00	0.03-0.11	0.0-2.9	.15	.15			
	7-23	3-12	1.35-1.70	>20.00	0.03-0.07	0.0-2.9	.05	.10			
	23-35	0-8	1.40-1.65	>20.00	0.01-0.04	0.0-2.9	.05	.10			
	35-60	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
	60-80	0-8	1.55-1.65	>20.00	0.01-0.02	0.0-2.9	.02	.10			
162F:											
Trimountain-----	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	3	4	86
	2-6	4-18	1.30-1.60	0.60-2.00	0.10-0.14	0.0-2.9	.15	.24			
	6-11	3-18	1.35-1.65	0.60-2.00	0.10-0.14	0.0-2.9	.15	.24			
	11-20	3-18	1.35-1.65	0.60-2.00	0.10-0.14	0.0-2.9	.15	.24			
	20-33	3-18	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.10	.17			
	33-51	3-18	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.10	.24			
	51-80	3-18	1.70-1.90	0.60-6.00	0.02-0.05	0.0-2.9	.10	.17			
Lac La Belle----	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	3	86
	1-5	3-18	1.30-1.60	6.00-28.57	0.04-0.08	0.0-2.9	.05	.17			
	5-12	3-18	1.40-1.65	6.00-30.76	0.04-0.07	0.0-2.9	.05	.17			
	12-36	3-15	1.40-1.65	6.00-31.16	0.02-0.05	0.0-2.9	.05	.17			
	36-42	3-18	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.05	.17			
	42-50	3-15	1.80-2.10	0.01-0.06	0.04-0.08	0.0-2.9	.05	.17			
	50-62	3-18	1.80-2.10	0.01-0.06	0.04-0.08	0.0-2.9	.05	.24			
	62-80	3-15	1.55-1.75	0.60-6.00	0.03-0.07	0.0-2.9	.05	.17			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
162F:											
Michigamme------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	1	310
	1-4	3-10	1.25-1.60	0.60-2.00	0.08-0.15	0.0-2.9	.17	.24			
	4-10	3-15	1.35-1.60	0.60-2.00	0.07-0.22	0.0-2.9	.28	.37			
	10-22	3-15	1.35-1.60	0.60-2.00	0.07-0.22	0.0-2.9	.28	.37			
	22-30	3-10	1.50-1.85	0.60-2.00	0.05-0.16	0.0-2.9	.20	.28			
	>30	---	---	---	---	---	---	---			
166B:											
Gratiot---------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	5	56
	1-4	4-18	1.30-1.70	0.60-2.00	0.04-0.08	0.0-2.9	.15	.24			
	4-7	3-18	1.40-1.65	0.60-2.00	0.04-0.07	0.0-2.9	.10	.24			
	7-12	3-18	1.40-1.65	0.60-2.00	0.04-0.07	0.0-2.9	.10	.24			
	12-20	4-18	1.40-1.65	0.60-2.00	0.05-0.08	0.0-2.9	.10	.24			
	20-30	3-18	1.80-2.05	0.01-0.06	0.03-0.07	0.0-2.9	.10	.28			
	30-80	3-18	1.30-1.70	0.60-6.00	0.14-0.18	0.0-2.9	.15	.24			
Sabattis--------	0-8	---	0.20-0.30	0.16-6.00	0.35-0.45	---	---	---	5	5	56
	8-12	5-18	1.25-1.60	0.60-2.00	0.08-0.10	0.0-2.9	.15	.37			
	12-17	5-18	1.25-1.60	0.60-2.00	0.13-0.15	0.0-2.9	.15	.43			
	17-32	5-18	1.55-1.75	0.60-2.00	0.12-0.14	0.0-2.9	.28	.43			
	32-37	5-18	1.55-1.75	0.20-2.00	0.09-0.11	0.0-2.9	.10	.20			
	37-80	5-18	1.55-1.75	0.20-2.00	0.07-0.09	0.0-2.9	.05	.20			
173C:											
Montreal--------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	4	86
	2-6	4-18	1.30-1.60	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	6-11	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	11-20	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	20-33	2-12	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.05	.17			
	33-51	2-12	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.10	.24			
	51-80	0-12	1.55-1.75	0.60-6.00	0.03-0.06	0.0-2.9	.05	.17			
Paavola---------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	2-6	3-15	1.30-1.60	>20.00	0.07-0.10	0.0-2.9	.10	.17			
	6-12	3-15	1.40-1.65	>20.00	0.07-0.10	0.0-2.9	.05	.17			
	12-27	0-8	1.40-1.65	>20.00	0.02-0.05	0.0-2.9	.05	.15			
	27-35	3-18	1.80-2.10	0.01-0.06	0.07-0.10	0.0-2.9	.10	.17			
	35-46	4-18	1.80-2.10	0.01-0.06	0.07-0.09	0.0-2.9	.10	.24			
	46-80	4-18	1.60-1.80	0.01-0.06	0.07-0.09	0.0-2.9	.10	.24			
Dishno----------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	4	86
	1-3	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	3-4	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	4-8	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	8-26	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	26-31	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	31-42	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	>42	---	---	0.01-0.06	---	---	---	---			
173E:											
Montreal--------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	4	86
	2-6	4-18	1.30-1.60	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	6-11	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	11-20	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	20-33	2-12	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.05	.17			
	33-51	2-12	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.10	.24			
	51-80	0-12	1.55-1.75	0.60-6.00	0.03-0.06	0.0-2.9	.05	.17			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
173E:											
Paavola---------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	2-6	3-15	1.30-1.60	>20.00	0.07-0.10	0.0-2.9	.10	.17			
	6-12	3-15	1.40-1.65	>20.00	0.07-0.10	0.0-2.9	.05	.17			
	12-27	0-8	1.40-1.65	>20.00	0.02-0.05	0.0-2.9	.05	.15			
	27-35	3-18	1.80-2.10	0.01-0.06	0.07-0.10	0.0-2.9	.10	.17			
	35-46	4-18	1.80-2.10	0.01-0.06	0.07-0.09	0.0-2.9	.10	.24			
	46-80	4-18	1.60-1.80	0.01-0.06	0.07-0.09	0.0-2.9	.10	.24			
Dishno----------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	4	86
	1-3	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	3-4	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	4-8	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	8-26	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	26-31	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	31-42	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	>42	---	---	---	---	---	---	---			
174B:											
Montreal--------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	4	86
	2-6	4-18	1.30-1.60	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	6-11	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	11-20	4-18	1.35-1.70	0.60-2.00	0.11-0.15	0.0-2.9	.15	.24			
	20-33	2-12	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.05	.17			
	33-51	2-12	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.10	.24			
	51-80	0-12	1.55-1.75	0.60-6.00	0.03-0.06	0.0-2.9	.05	.17			
Dishno----------	0-1	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	4	86
	1-3	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	3-4	4-18	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.28	.37			
	4-8	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	8-26	4-18	1.35-1.70	0.60-2.00	0.16-0.18	0.0-2.9	.32	.32			
	26-31	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	31-42	3-15	1.50-1.80	2.00-6.00	0.08-0.10	0.0-2.9	.10	.20			
	>42	---	---	0.01-0.06	---	---	---	---			
Gratiot---------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	5	56
	1-4	4-18	1.30-1.70	0.60-2.00	0.04-0.08	0.0-2.9	.15	.24			
	4-7	3-18	1.40-1.65	0.60-2.00	0.04-0.07	0.0-2.9	.10	.24			
	7-12	3-18	1.40-1.65	0.60-2.00	0.04-0.07	0.0-2.9	.10	.24			
	12-20	4-18	1.40-1.65	0.60-2.00	0.05-0.08	0.0-2.9	.10	.24			
	20-30	3-18	1.80-2.05	0.01-0.06	0.03-0.07	0.0-2.9	.10	.28			
	30-80	3-18	1.30-1.70	0.60-6.00	0.14-0.18	0.0-2.9	.15	.24			
177A:											
Assinins--------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	2-11	0-10	1.25-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	11-15	0-10	1.25-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	15-24	0-10	1.25-1.60	6.00-20.00	0.07-0.09	0.0-2.9	.15	.15			
	24-37	5-18	1.50-1.90	0.20-2.00	0.10-0.13	0.0-2.9	.37	.37			
	37-80	5-18	1.50-1.90	0.60-2.00	0.10-0.16	0.0-2.9	.24	.24			
183C:											
Munising--------	0-2	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	3	86
	2-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	4-11	0-10	1.30-1.65	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	11-13	4-10	1.35-1.70	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	13-18	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.24	.24			
	18-31	8-14	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.24	.24			
	31-51	10-35	1.35-1.70	0.20-2.00	0.10-0.14	0.0-2.9	.24	.24			
	51-80	6-12	1.55-1.75	0.20-2.00	0.07-0.11	0.0-2.9	.24	.24			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
183C:											
Abbaye----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	3	86
	1-5	3-15	1.35-1.65	0.60-2.00	0.13-0.18	0.0-2.9	.15	.17			
	5-11	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.24			
	11-18	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.24			
	18-28	8-15	1.30-1.70	0.60-2.00	0.09-0.17	0.0-2.9	.20	.24			
	28-30	---	---	---	---	---	---	---			
	30-80	---	---	0.00-0.20	---	---	---	---			
Yalmer----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	1-6	3-15	1.30-1.65	6.00-20.00	0.10-0.13	0.0-2.9	.17	.17			
	6-13	3-15	1.40-1.70	6.00-20.00	0.10-0.13	0.0-2.9	.17	.17			
	13-28	3-15	1.40-1.70	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17			
	28-43	3-18	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.15	.17			
	43-52	3-18	1.80-2.10	0.01-0.06	0.04-0.07	0.0-2.9	.20	.24			
	52-80	5-18	1.60-1.80	0.60-2.00	0.10-0.13	0.0-2.9	.20	.24			
183E:											
Munising--------	0-2	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	3	86
	2-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	4-11	0-10	1.30-1.65	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	11-13	4-10	1.35-1.70	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	13-18	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.24	.24			
	18-31	8-14	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.24	.24			
	31-51	10-35	1.35-1.70	0.20-2.00	0.10-0.14	0.0-2.9	.24	.24			
	51-80	6-12	1.55-1.75	0.20-2.00	0.07-0.11	0.0-2.9	.24	.24			
Abbaye----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	3	86
	1-5	3-15	1.35-1.65	0.60-2.00	0.13-0.18	0.0-2.9	.15	.17			
	5-11	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.24			
	11-18	4-10	1.35-1.70	0.60-2.00	0.11-0.17	0.0-2.9	.24	.24			
	18-28	8-15	1.30-1.70	0.60-2.00	0.09-0.17	0.0-2.9	.20	.24			
	28-30	---	---	---	---	---	---	---			
	30-80	---	---	0.00-0.20	---	---	---	---			
Yalmer----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	1-6	3-15	1.30-1.65	6.00-20.00	0.10-0.13	0.0-2.9	.17	.17			
	6-13	3-15	1.40-1.70	6.00-20.00	0.10-0.13	0.0-2.9	.17	.17			
	13-28	3-15	1.40-1.70	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17			
	28-43	3-18	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.15	.17			
	43-52	3-18	1.80-2.10	0.01-0.06	0.04-0.07	0.0-2.9	.20	.24			
	52-80	5-18	1.60-1.80	0.60-2.00	0.10-0.13	0.0-2.9	.20	.24			
184C:											
Munising--------	0-2	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	3	86
	2-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	4-11	0-10	1.30-1.65	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	11-13	4-10	1.35-1.70	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	13-18	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.24	.24			
	18-31	8-14	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.24	.24			
	31-51	10-35	1.35-1.70	0.20-2.00	0.10-0.14	0.0-2.9	.24	.24			
	51-80	6-12	1.55-1.75	0.20-2.00	0.07-0.11	0.0-2.9	.24	.24			
Yalmer----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	1-6	3-15	1.30-1.65	6.00-20.00	0.10-0.13	0.0-2.9	.17	.17			
	6-13	3-15	1.40-1.70	6.00-20.00	0.10-0.13	0.0-2.9	.17	.17			
	13-28	3-15	1.40-1.70	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17			
	28-43	3-18	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.15	.17			
	43-52	3-18	1.80-2.10	0.01-0.06	0.04-0.07	0.0-2.9	.20	.24			
	52-80	5-18	1.60-1.80	0.60-2.00	0.10-0.13	0.0-2.9	.20	.24			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
184E:											
Munising--------	0-2	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	3	86
	2-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	4-11	0-10	1.30-1.65	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	11-13	4-10	1.35-1.70	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	13-18	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.24	.24			
	18-31	8-14	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.24	.24			
	31-51	10-35	1.35-1.70	0.20-2.00	0.10-0.14	0.0-2.9	.24	.24			
	51-80	6-12	1.55-1.75	0.20-2.00	0.07-0.11	0.0-2.9	.24	.24			
Yalmer----------	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	1-6	3-15	1.30-1.65	6.00-20.00	0.10-0.13	0.0-2.9	.17	.17			
	6-13	3-15	1.40-1.70	6.00-20.00	0.10-0.13	0.0-2.9	.17	.17			
	13-28	3-15	1.40-1.70	6.00-20.00	0.09-0.12	0.0-2.9	.15	.17			
	28-43	3-18	1.80-2.10	0.01-0.06	0.03-0.06	0.0-2.9	.15	.17			
	43-52	3-18	1.80-2.10	0.01-0.06	0.04-0.07	0.0-2.9	.20	.24			
	52-80	5-18	1.60-1.80	0.60-2.00	0.10-0.13	0.0-2.9	.20	.24			
185B:											
Munising--------	0-2	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	3	86
	2-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	4-11	0-10	1.30-1.65	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	11-13	4-10	1.35-1.70	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	13-18	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.24	.24			
	18-31	8-14	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.24	.24			
	31-51	10-35	1.35-1.70	0.20-2.00	0.10-0.14	0.0-2.9	.24	.24			
	51-80	6-12	1.55-1.75	0.20-2.00	0.07-0.11	0.0-2.9	.24	.24			
Skanee----------	0-2	---	---	0.60-2.00	---	---	---	---	3	3	86
	2-8	2-10	1.20-1.50	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	8-14	2-10	1.35-1.60	0.60-2.00	0.14-0.17	0.0-2.9	.20	.24			
	14-31	4-12	1.80-2.10	0.01-0.06	0.02-0.04	0.0-2.9	.20	.24			
	31-42	10-35	1.35-1.70	0.60-2.00	0.03-0.05	0.0-2.9	.32	.37			
	42-80	6-12	1.55-1.70	0.60-2.00	0.03-0.05	0.0-2.9	.20	.24			
185C:											
Munising--------	0-2	---	0.10-0.20	0.60-6.00	0.45-0.55	---	---	---	4	3	86
	2-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	4-11	0-10	1.30-1.65	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	11-13	4-10	1.35-1.70	0.60-2.00	0.16-0.20	0.0-2.9	.24	.24			
	13-18	4-10	1.35-1.70	0.60-2.00	0.10-0.14	0.0-2.9	.24	.24			
	18-31	8-14	1.80-2.10	0.01-0.06	0.02-0.05	0.0-2.9	.24	.24			
	31-51	10-35	1.35-1.70	0.20-2.00	0.10-0.14	0.0-2.9	.24	.24			
	51-80	6-12	1.55-1.75	0.20-2.00	0.07-0.11	0.0-2.9	.24	.24			
Skanee----------	0-2	---	---	0.60-2.00	---	---	---	---	3	3	86
	2-8	2-10	1.20-1.50	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	8-14	2-10	1.35-1.60	0.60-2.00	0.14-0.17	0.0-2.9	.20	.24			
	14-31	4-12	1.80-2.10	0.01-0.06	0.02-0.04	0.0-2.9	.20	.24			
	31-42	10-35	1.35-1.70	0.60-2.00	0.03-0.05	0.0-2.9	.32	.37			
	42-80	6-12	1.55-1.70	0.60-2.00	0.03-0.05	0.0-2.9	.20	.24			
187A:											
Skanee----------	0-2	---	---	0.60-2.00	---	---	---	---	3	3	86
	2-8	2-10	1.20-1.50	0.60-2.00	0.09-0.18	0.0-2.9	.20	.24			
	8-14	2-10	1.35-1.60	0.60-2.00	0.14-0.17	0.0-2.9	.20	.24			
	14-31	4-12	1.80-2.10	0.01-0.06	0.02-0.04	0.0-2.9	.20	.24			
	31-42	10-35	1.35-1.70	0.60-2.00	0.03-0.05	0.0-2.9	.32	.37			
	42-80	6-12	1.55-1.70	0.60-2.00	0.03-0.05	0.0-2.9	.20	.24			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
187A:											
Gay------------	0-4	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	2	134
	4-7	2-10	1.10-1.50	0.60-2.00	0.07-0.18	0.0-2.9	.24	.24			
	7-11	2-10	1.10-1.60	0.60-2.00	0.07-0.15	0.0-2.9	.24	.24			
	11-16	6-35	1.50-1.85	0.60-2.00	0.10-0.18	0.0-2.9	.20	.24			
	16-30	6-12	1.70-1.80	0.60-2.00	0.09-0.13	0.0-2.9	.20	.24			
	30-60	6-12	1.70-1.80	0.60-2.00	0.09-0.13	0.0-2.9	.20	.24			
192B:											
Nipissing-------	0-1	---	0.05-0.15	6.00-20.00	0.55-0.65	---	---	---	4	8	0
	1-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---			
	3-4	5-18	1.30-1.60	6.00-20.00	0.04-0.06	0.0-2.9	.24	.05			
	4-20	5-18	1.35-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.24	.05			
	20-29	4-18	1.35-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.24	.05			
	29-35	5-18	1.35-1.70	6.00-20.00	0.04-0.06	0.0-2.9	.24	.02			
	35-39	0-10	1.35-1.70	>20.00	0.01-0.01	0.0-2.9	.02	.02			
	>39	---	---	---	---	---	---	---			
Arcadian--------	0-3	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	2	8	0
	3-5	4-15	1.30-1.60	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	5-12	4-18	1.35-1.70	0.60-2.00	0.06-0.11	0.0-2.9	.17	.24			
	12-22	---	---	---	---	---	---	---			
Rock outcrop.											
194B:											
Copper Harbor---	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	3	86
	1-5	0-10	1.25-1.65	20.00-28.98	0.07-0.11	0.0-3.0	.02	.10			
	5-14	0-15	1.35-1.70	20.00-30.96	0.07-0.11	0.0-3.0	.02	.10			
	14-30	0-10	1.35-1.70	20.00-30.76	0.07-0.11	0.0-3.0	.02	.10			
	30-40	0-15	1.30-1.75	20.00-28.98	0.05-0.09	0.0-3.0	.02	.10			
	40-60	0-15	1.30-1.70	20.00-28.17	0.02-0.05	0.0-3.0	.02	.10			
	60-80	5-15	1.30-1.65	20.00-28.98	0.03-0.07	0.0-3.0	.02	.10			
195B:											
Copper Harbor---	0-1	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	3	86
	1-5	0-10	1.25-1.65	20.00-28.98	0.07-0.11	0.0-3.0	.02	.10			
	5-14	0-15	1.35-1.70	20.00-30.96	0.07-0.11	0.0-3.0	.02	.10			
	14-30	0-10	1.35-1.70	20.00-30.76	0.07-0.11	0.0-3.0	.02	.10			
	30-40	0-15	1.30-1.75	20.00-28.98	0.05-0.09	0.0-3.0	.02	.10			
	40-60	0-15	1.30-1.70	20.00-28.17	0.02-0.05	0.0-3.0	.02	.10			
	60-80	5-15	1.30-1.65	20.00-28.98	0.03-0.07	0.0-3.0	.02	.10			
Bete Grise------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	3	86
	2-5	0-15	1.25-1.65	20.00-28.17	0.05-0.12	0.0-3.0	.05	.15			
	5-17	3-18	1.40-1.65	20.00-27.57	0.02-0.08	0.0-3.0	.05	.17			
	17-32	0-10	1.40-1.65	20.00-29.06	0.02-0.08	0.0-3.0	.05	.15			
	32-36	3-18	1.40-1.65	20.00-30.56	0.01-0.03	0.0-3.0	.05	.17			
	36-59	0-15	1.50-1.75	20.00-28.98	0.02-0.06	0.0-3.0	.02	.15			
	59-80	0-10	1.50-1.75	20.00-28.98	0.02-0.06	0.0-3.0	.02	.15			
196B:											
Bete Grise------	0-2	---	0.20-0.30	0.20-6.00	0.35-0.45	---	---	---	5	3	86
	2-5	0-15	1.25-1.65	20.00-28.17	0.05-0.12	0.0-3.0	.05	.15			
	5-17	3-18	1.40-1.65	20.00-27.57	0.02-0.08	0.0-3.0	.05	.17			
	17-32	0-10	1.40-1.65	20.00-29.06	0.02-0.08	0.0-3.0	.05	.15			
	32-36	3-18	1.40-1.65	20.00-30.56	0.01-0.03	0.0-3.0	.05	.17			
	36-59	0-15	1.50-1.75	20.00-28.98	0.02-0.06	0.0-3.0	.02	.15			
	59-80	0-10	1.50-1.75	20.00-28.98	0.02-0.06	0.0-3.0	.02	.15			
Tawas-----------	0-6	---	0.30-0.55	0.20-6.00	0.35-0.45	---	---	---	4	2	134
	6-25	---	0.30-0.55	0.20-6.00	0.24-0.45	---	---	---			
	25-80	0-5	1.40-1.65	6.00-20.00	0.03-0.10	0.0-2.9	.15	.15			

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
301:											
Udorthents------	0-79	10-25	1.50-1.70	0.20-6.00	0.11-0.18	0.0-2.9	.24	---	5	3	86
Udipsamments----	0-79	0-10	1.35-1.65	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15	5	1	250
302:											
Histosols-------	0-51	0-0	---	0.20-6.00	0.50-0.70	---	---	---	5	2	134
	51-80	---	---	0.01-0.02	---	---	---	---			
Aquents---------	0-79	0-30	---	0.06-0.60	0.10-0.25	---	.32	.32	-	8	0
303:											
Aquents---------	0-79	0-30	---	0.06-0.60	0.10-0.25	---	.32	.32	-	8	0
Dumps, stamp sand-----------	0-80	0-5	1.35-1.65	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15	5	1	220
310. Dumps, mine											
311: Dumps, stamp sand-----------	0-80	0-5	1.35-1.65	6.00-20.00	0.05-0.09	0.0-2.9	.15	.15	5	1	220
312. Pits											
313. Dumps, sawdust											
W. Water											

Table 17.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
2:						
Lupton----------	0-8	5.6-7.8	75-90	140-180	---	0
	8-80	5.6-7.8	80-95	140-180	---	0
Tawas-----------	0-6	4.5-6.5	75-90	80-120	---	0
	6-25	4.5-7.3	80-95	80-120	---	0
	25-80	5.6-8.4	0.0-0.0	1.0-3.0	---	0
3:						
Dawson----------	0-6	3.0-4.4	85-95	---	100-180	0
	6-38	3.0-4.4	80-95	---	140-180	---
	38-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
Loxley----------	0-5	3.0-4.5	85-95	---	50-100	0
	5-26	3.2-4.5	80-95	---	50-120	0
	26-45	3.2-4.5	80-95	---	50-120	0
	45-80	3.6-4.5	65-85	---	120-190	0
6:						
Skandia---------	0-5	3.5-4.4	85-95	---	100-180	---
	5-33	3.5-4.4	80-95	---	100-180	---
	33-41	---	---	---	---	---
	41-80	---	---	---	---	---
Burt------------	0-4	4.5-6.5	75-90	---	---	---
	4-6	4.5-6.5	2.0-5.0	20-60	---	0
	6-12	4.5-6.5	0.0-0.5	0.0-6.0	---	0
	12-17	4.5-6.5	0.0-0.5	0.0-6.0	---	0
	>17	---	---	---	---	---
10:						
Cathro----------	0-16	4.5-6.5	75-90	100-180	---	---
	16-34	4.5-6.5	80-95	100-180	---	---
	34-80	5.6-8.4	0.0-0.5	2.0-12	---	10-30
Sabattis--------	0-8	4.5-6.0	75-90	---	100-140	---
	8-12	4.5-6.0	2.0-5.0	---	30-40	0
	12-17	4.5-6.0	0.0-0.5	---	30-40	0
	17-32	4.5-6.0	0.0-0.5	---	1.0-8.0	0
	32-37	5.1-6.5	0.0-0.5	1.0-3.0	---	0
	37-80	5.1-6.5	0.0-0.5	1.0-3.0	---	0
13:						
Tawas-----------	0-6	4.5-6.5	75-90	80-120	---	0
	6-25	4.5-7.3	80-95	80-120	---	0
	25-80	5.6-8.4	0.0-0.0	1.0-3.0	---	0
Deford----------	0-6	3.5-6.0	75-90	---	---	---
	6-8	4.5-6.5	2.0-5.0	1.0-5.0	---	0
	8-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
15B:						
Dawson----------	0-6	3.0-4.4	85-95	---	100-180	0
	6-38	3.0-4.4	80-95	---	140-180	---
	38-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
15B:						
Croswell--------	0-1	3.5-5.5	50-90	---	---	---
	1-11	3.5-5.5	0.5-2.0	---	1.0-5.0	0
	11-21	3.5-5.5	0.5-3.0	---	1.0-4.0	0
	21-34	3.5-6.5	0.0-0.5	1.0-2.0	---	0
	34-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
20E.						
Rock outcrop						
21G:						
Rock outcrop.						
Arcadian--------	0-3	4.5-6.0	50-90	---	---	---
	3-5	5.1-6.5	0.5-2.0	5.0-15	---	0
	5-12	5.1-6.5	2.0-5.0	5.0-15	---	0
	12-22	---	---	---	---	---
39A:						
Betsy Bay-------	0-1	3.5-6.5	50-90	---	---	---
	1-18	3.6-7.3	0.5-2.0	5.0-10	---	0
	18-26	3.6-7.3	0.5-1.0	5.0-10	---	0
	26-43	3.6-7.3	0.0-0.5	5.0-10	---	0
	>43	---	---	---	---	---
Burt------------	0-4	4.5-6.5	75-90	---	---	---
	4-6	4.5-6.5	2.0-5.0	20-60	---	0
	6-12	4.5-6.5	0.0-0.5	0.0-6.0	---	0
	12-17	4.5-6.5	0.0-0.5	0.0-6.0	---	0
	>17	---	---	---	---	---
Deford----------	0-6	3.5-6.0	75-90	---	---	---
	6-8	4.5-6.5	2.0-5.0	1.0-5.0	---	0
	8-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
47A:						
Zeba------------	0-2	4.5-6.0	50-90	---	---	---
	2-3	4.5-6.0	0.5-2.0	---	1.0-10	0
	3-9	4.5-6.0	0.5-3.0	4.0-13	---	0
	9-14	4.5-6.5	0.0-0.5	---	4.0-10	0
	14-25	4.5-6.5	0.0-0.5	---	4.0-10	0
	25-27	---	---	---	---	---
	>27	---	---	---	---	---
Jacobsville-----	0-5	4.5-5.5	75-90	---	---	---
	5-12	4.5-6.0	0.5-2.0	1.0-5.0	3.0-12	---
	12-20	4.5-6.5	0.5-1.0	1.0-5.0	4.0-13	---
	20-21	5.1-6.5	0.0-0.5	2.0-13	---	---
	21-22	---	---	---	---	---
	>22	---	---	---	---	---
51C:						
Arcadian--------	0-3	4.5-6.0	50-90	---	---	---
	3-5	5.1-6.5	0.5-2.0	5.0-15	---	0
	5-12	5.1-6.5	2.0-5.0	5.0-15	---	0
	12-22	---	---	---	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
51C:						
Nipissing-------	0-1	3.5-5.5	50-90	---	---	---
	1-3	4.5-6.0	50-90	---	---	---
	3-4	5.1-6.5	0.5-2.0	5.0-15	---	0
	4-20	5.1-6.5	2.0-5.0	5.0-15	---	0
	20-29	5.1-6.5	2.0-5.0	5.0-15	---	0
	29-35	5.1-6.5	2.0-5.0	5.0-15	---	0
	35-39	5.1-6.5	2.0-5.0	5.0-15	---	0
	>39	---	---	---	---	---
Rock outcrop.						
51E:						
Arcadian--------	0-3	4.5-6.0	50-90	---	---	---
	3-5	5.1-6.5	0.5-2.0	5.0-15	---	0
	5-12	5.1-6.5	2.0-5.0	5.0-15	---	0
	12-22	---	---	---	---	---
Nipissing-------	0-1	3.5-5.5	50-90	---	---	---
	1-3	4.5-6.0	50-90	---	---	---
	3-4	5.1-6.5	0.5-2.0	5.0-15	---	0
	4-20	5.1-6.5	2.0-5.0	5.0-15	---	0
	20-29	5.1-6.5	2.0-5.0	5.0-15	---	0
	29-35	5.1-6.5	2.0-5.0	5.0-15	---	0
	35-39	5.1-6.5	2.0-5.0	5.0-15	---	0
	>39	---	---	---	---	---
Rock outcrop.						
52C:						
Arcadian--------	0-3	4.5-6.0	50-90	---	---	---
	3-5	5.1-6.5	0.5-2.0	5.0-15	---	0
	5-12	5.1-6.5	2.0-5.0	5.0-15	---	0
	12-22	---	---	---	---	---
Dishno----------	0-1	3.5-5.5	50-90	---	---	---
	1-3	3.5-5.5	2.0-5.0	---	2.0-10	0
	3-4	3.5-5.5	0.5-2.0	---	2.0-10	0
	4-8	3.5-5.5	2.0-5.0	---	2.0-10	0
	8-26	3.5-5.5	0.5-3.0	---	2.0-10	0
	26-31	4.5-6.0	0.0-0.5	---	1.0-10	0
	31-42	4.5-6.0	0.0-0.5	---	1.0-10	0
	>42	---	---	---	---	---
Rock outcrop.						
52E:						
Arcadian--------	0-3	4.5-6.0	50-90	---	---	---
	3-5	5.1-6.5	0.5-2.0	5.0-15	---	0
	5-12	5.1-6.5	2.0-5.0	5.0-15	---	0
	12-22	---	---	---	---	---
Dishno----------	0-1	3.5-5.5	50-90	---	---	---
	1-3	3.5-5.5	2.0-5.0	---	2.0-10	0
	3-4	3.5-5.5	0.5-2.0	---	2.0-10	0
	4-8	3.5-5.5	2.0-5.0	---	2.0-10	0
	8-26	3.5-5.5	0.5-3.0	---	2.0-10	0
	26-31	4.5-6.0	0.0-0.5	---	1.0-10	0
	31-42	4.5-6.0	0.0-0.5	---	1.0-10	0
	>42	---	---	---	---	---
Rock outcrop.						

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
53E:						
Arcadian--------	0-3	4.5-6.0	50-90	---	---	---
	3-5	5.1-6.5	0.5-2.0	5.0-15	---	0
	5-12	5.1-6.5	2.0-5.0	5.0-15	---	0
	12-22	---	---	---	---	---
Michigamme------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-6.5	0.5-2.0	---	3.0-20	0
	4-10	3.5-6.5	2.0-5.0	---	3.0-15	0
	10-22	3.5-6.5	0.5-3.0	---	3.0-15	0
	22-30	4.5-6.5	0.5-3.0	1.0-5.0	---	0
	>30	---	---	---	---	---
Rock outcrop.						
53F:						
Arcadian--------	0-3	4.5-6.0	50-90	---	---	---
	3-5	5.1-6.5	0.5-2.0	5.0-15	---	0
	5-12	5.1-6.5	2.0-5.0	5.0-15	---	0
	12-22	---	---	---	---	---
Michigamme------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-6.5	0.5-2.0	---	3.0-20	0
	4-10	3.5-6.5	2.0-5.0	---	3.0-15	0
	10-22	3.5-6.5	0.5-3.0	---	3.0-15	0
	22-30	4.5-6.5	0.5-3.0	1.0-5.0	---	0
	>30	---	---	---	---	---
Rock outcrop.						
55B:						
Chocolay--------	0-2	3.5-5.5	50-90	---	---	---
	2-11	3.5-5.5	0.5-2.0	---	2.0-10	0
	11-13	3.5-5.5	2.0-5.0	---	6.0-18	0
	13-18	4.5-5.5	0.5-3.0	---	---	0
	18-21	3.6-7.3	0.0-0.5	5.0-10	---	0
	>21	---	---	---	---	---
100B:						
Waiska----------	0-1	3.5-5.5	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	1.0-6.0	0
	7-23	3.5-6.0	2.0-5.0	---	4.0-12	0
	23-35	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	35-60	5.1-6.0	0.0-0.5	---	0.0-3.0	0
	60-80	5.1-6.0	0.0-0.5	---	0.0-3.0	0
100D:						
Waiska----------	0-1	3.5-5.5	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	1.0-6.0	0
	7-23	3.5-6.0	2.0-5.0	---	4.0-12	0
	23-35	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	35-60	5.1-6.0	0.0-0.5	---	0.0-3.0	0
	60-80	5.1-6.0	0.0-0.5	---	0.0-3.0	0
102C:						
Waiska----------	0-1	3.5-5.5	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	1.0-6.0	0
	7-23	3.5-6.0	2.0-5.0	---	4.0-12	0
	23-35	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	35-60	5.1-6.0	0.0-0.5	---	0.0-3.0	0
	60-80	5.1-6.0	0.0-0.5	---	0.0-3.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
102C:						
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
102E:						
Waiska----------	0-1	3.5-5.5	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	1.0-6.0	0
	7-23	3.5-6.0	2.0-5.0	---	4.0-12	0
	23-35	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	35-60	5.1-6.0	0.0-0.5	---	0.0-3.0	0
	60-80	5.1-6.0	0.0-0.5	---	0.0-3.0	0
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
102F:						
Waiska----------	0-1	3.5-5.5	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	1.0-6.0	0
	7-23	3.5-6.0	2.0-5.0	---	4.0-12	0
	23-35	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	35-60	5.1-6.0	0.0-0.5	---	0.0-3.0	0
	60-80	5.1-6.0	0.0-0.5	---	0.0-3.0	0
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
110B:						
Shelldrake------	0-1	3.5-5.5	50-90	---	---	---
	1-6	3.5-6.0	1.0-2.5	---	4.0-10	0
	6-13	3.5-6.0	0.2-0.5	---	0.0-1.0	0
	13-23	3.5-6.0	0.0-0.2	---	0.0-1.0	0
	23-80	3.5-6.0	0.0-0.2	---	0.0-1.0	0
Croswell--------	0-1	3.5-5.5	50-90	---	---	---
	1-11	3.5-5.5	0.5-2.0	---	1.0-5.0	0
	11-21	3.5-5.5	0.5-3.0	---	1.0-4.0	0
	21-34	3.5-6.5	0.0-0.5	1.0-2.0	---	0
	34-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
111B:						
Deer Park-------	0-1	3.6-5.5	50-90	---	---	---
	1-8	3.6-6.0	0.5-2.0	1.0-3.0	---	0
	8-17	5.1-6.5	0.5-3.0	1.0-3.0	---	0
	17-24	5.1-6.5	0.5-2.0	1.0-3.0	---	0
	24-35	5.1-6.5	0.0-0.5	0.0-2.0	---	0
	35-80	5.1-6.5	0.0-0.5	0.0-2.0	---	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
111D:						
Deer Park-------	0-1	3.6-5.5	50-90	---	---	---
	1-8	3.6-6.0	0.5-2.0	1.0-3.0	---	0
	8-17	5.1-6.5	0.5-3.0	1.0-3.0	---	0
	17-24	5.1-6.5	0.5-2.0	1.0-3.0	---	0
	24-35	5.1-6.5	0.0-0.5	0.0-2.0	---	0
	35-80	5.1-6.5	0.0-0.5	0.0-2.0	---	0
111E:						
Deer Park-------	0-1	3.6-5.5	50-90	---	---	---
	1-8	3.6-6.0	0.5-2.0	1.0-3.0	---	0
	8-17	5.1-6.5	0.5-3.0	1.0-3.0	---	0
	17-24	5.1-6.5	0.5-2.0	1.0-3.0	---	0
	24-35	5.1-6.5	0.0-0.5	0.0-2.0	---	0
	35-80	5.1-6.5	0.0-0.5	0.0-2.0	---	0
111F:						
Deer Park-------	0-1	3.6-5.5	50-90	---	---	---
	1-8	3.6-6.0	0.5-2.0	1.0-3.0	---	0
	8-17	5.1-6.5	0.5-3.0	1.0-3.0	---	0
	17-24	5.1-6.5	0.5-2.0	1.0-3.0	---	0
	24-35	5.1-6.5	0.0-0.5	0.0-2.0	---	0
	35-80	5.1-6.5	0.0-0.5	0.0-2.0	---	0
112C:						
Deer Park-------	0-1	3.6-5.5	50-90	---	---	---
	1-8	3.6-6.0	0.5-2.0	1.0-3.0	---	0
	8-17	5.1-6.5	0.5-3.0	1.0-3.0	---	0
	17-24	5.1-6.5	0.5-2.0	1.0-3.0	---	0
	24-35	5.1-6.5	0.0-0.5	0.0-2.0	---	0
	35-80	5.1-6.5	0.0-0.5	0.0-2.0	---	0
Croswell--------	0-1	3.5-5.5	50-90	---	---	---
	1-11	3.5-5.5	0.5-2.0	---	1.0-5.0	0
	11-21	3.5-5.5	0.5-3.0	---	1.0-4.0	0
	21-34	3.5-6.5	0.0-0.5	1.0-2.0	---	0
	34-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
113C:						
Rubicon---------	0-1	3.5-5.5	50-90	---	---	---
	1-7	4.5-6.0	0.5-2.0	---	0.2-5.0	0
	7-34	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	34-44	4.5-6.5	0.0-0.5	0.2-4.0	---	0
	44-80	4.5-6.5	0.0-0.5	0.2-4.0	---	0
Croswell--------	0-1	3.5-5.5	50-90	---	---	---
	1-11	3.5-5.5	0.5-2.0	---	1.0-5.0	0
	11-21	3.5-5.5	0.5-3.0	---	1.0-4.0	0
	21-34	3.5-6.5	0.0-0.5	1.0-2.0	---	0
	34-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
120B:						
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
120D:						
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
120E:						
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
125A:						
Croswell--------	0-1	3.5-5.5	50-90	---	---	---
	1-11	3.5-5.5	0.5-2.0	---	1.0-5.0	0
	11-21	3.5-5.5	0.5-3.0	---	1.0-4.0	0
	21-34	3.5-6.5	0.0-0.5	1.0-2.0	---	0
	34-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
Au Gres---------	0-4	3.5-6.0	50-90	---	---	---
	4-13	3.6-7.3	0.5-2.0	5.0-10	---	0
	13-19	3.6-7.3	2.0-5.0	5.0-10	---	0
	19-28	3.6-7.3	0.5-3.0	5.0-10	---	0
	28-34	5.1-7.3	0.0-0.5	1.0-2.0	---	0
	34-80	5.1-7.3	0.0-0.5	1.0-2.0	---	0
126B:						
Au Gres---------	0-4	3.5-6.0	50-90	---	---	---
	4-13	3.6-7.3	0.5-2.0	5.0-10	---	0
	13-19	3.6-7.3	2.0-5.0	5.0-10	---	0
	19-28	3.6-7.3	0.5-3.0	5.0-10	---	0
	28-34	5.1-7.3	0.0-0.5	1.0-2.0	---	0
	34-80	5.1-7.3	0.0-0.5	1.0-2.0	---	0
Deford----------	0-6	3.5-6.0	75-90	---	---	---
	6-8	4.5-6.5	2.0-5.0	1.0-5.0	---	0
	8-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
Croswell--------	0-1	3.5-5.5	50-90	---	---	---
	1-11	3.5-5.5	0.5-2.0	---	1.0-5.0	0
	11-21	3.5-5.5	0.5-3.0	---	1.0-4.0	0
	21-34	3.5-6.5	0.0-0.5	1.0-2.0	---	0
	34-80	3.5-6.5	0.0-0.5	1.0-2.0	---	0
127A:						
Au Gres---------	0-4	3.5-6.0	50-90	---	---	---
	4-13	3.6-7.3	0.5-2.0	5.0-10	---	0
	13-19	3.6-7.3	2.0-5.0	5.0-10	---	0
	19-28	3.6-7.3	0.5-3.0	5.0-10	---	0
	28-34	5.1-7.3	0.0-0.5	1.0-2.0	---	0
	34-80	5.1-7.3	0.0-0.5	1.0-2.0	---	0
Kinross---------	0-2	3.6-5.0	85-95	---	100-160	---
	2-6	3.6-5.0	80-95	---	100-180	---
	6-16	3.6-5.0	0.5-2.0	---	1.0-10	0
	16-32	3.6-6.0	2.0-5.0	---	1.0-10	0
	32-80	4.5-6.5	0.0-0.5	---	1.0-2.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
130C:						
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
Alcona----------	0-1	3.5-5.6	50-90	---	---	---
	1-4	4.5-6.0	0.5-2.0	1.0-6.0	0.1-4.0	0
	4-7	4.5-6.0	2.0-5.0	1.0-6.0	0.1-4.0	0
	7-29	5.1-6.5	0.5-3.0	1.0-8.0	0.1-4.0	0
	29-40	5.1-6.5	0.0-0.5	2.0-8.0	---	0
	40-46	5.1-7.3	0.0-0.5	1.0-8.0	---	0
	46-69	4.5-6.5	0.0-0.5	---	4.0-10	0
	69-80	5.1-7.3	0.0-0.5	1.0-8.0	---	0
130E:						
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
Alcona----------	0-1	3.5-5.6	50-90	---	---	---
	1-4	4.5-6.0	0.5-2.0	1.0-6.0	0.1-4.0	0
	4-7	4.5-6.0	2.0-5.0	1.0-6.0	0.1-4.0	0
	7-29	5.1-6.5	0.5-3.0	1.0-8.0	0.1-4.0	0
	29-40	5.1-6.5	0.0-0.5	2.0-8.0	---	0
	40-46	5.1-7.3	0.0-0.5	1.0-8.0	---	0
	46-69	4.5-6.5	0.0-0.5	---	4.0-10	0
	69-80	5.1-7.3	0.0-0.5	1.0-8.0	---	0
133C:						
Keweenaw--------	0-1	3.5-5.6	50-90	---	---	---
	1-11	4.5-6.5	0.5-2.0	2.0-10	---	0
	11-17	4.5-6.5	2.0-5.0	2.0-10	---	0
	17-39	4.5-6.5	0.5-3.0	2.0-10	---	0
	39-61	4.5-6.5	0.0-0.5	2.0-10	---	0
	61-80	5.1-6.5	0.0-0.5	1.0-10	---	0
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
133E:						
Keweenaw--------	0-1	3.5-5.6	50-90	---	---	---
	1-11	4.5-6.5	0.5-2.0	2.0-10	---	0
	11-17	4.5-6.5	2.0-5.0	2.0-10	---	0
	17-39	4.5-6.5	0.5-3.0	2.0-10	---	0
	39-61	4.5-6.5	0.0-0.5	2.0-10	---	0
	61-80	5.1-6.5	0.0-0.5	1.0-10	---	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
133E:						
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
133F:						
Keweenaw--------	0-1	3.5-5.6	50-90	---	---	---
	1-11	4.5-6.5	0.5-2.0	2.0-10	---	0
	11-17	4.5-6.5	2.0-5.0	2.0-10	---	0
	17-39	4.5-6.5	0.5-3.0	2.0-10	---	0
	39-61	4.5-6.5	0.0-0.5	2.0-10	---	0
	61-80	5.1-6.5	0.0-0.5	1.0-10	---	0
Garlic----------	0-1	3.5-5.6	50-90	---	---	---
	1-7	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	7-13	3.5-5.5	2.0-5.0	---	0.1-4.0	---
	13-20	3.5-5.5	0.5-3.0	---	0.1-4.0	---
	20-27	3.5-5.5	0.5-2.0	---	0.1-4.0	---
	27-46	5.1-6.0	0.0-0.5	0.5-4.0	---	---
	46-80	5.1-6.0	0.0-0.5	0.5-4.0	---	---
136B:						
Borgstrom-------	0-1	3.5-5.0	50-90	---	---	---
	1-8	3.5-5.0	0.5-2.0	3.0-14	0.4-3.0	---
	8-11	4.5-6.0	2.0-5.0	1.0-5.0	0.4-2.5	---
	11-18	4.5-6.0	0.5-3.0	1.0-5.0	0.4-2.5	---
	18-21	5.1-6.5	0.5-3.0	1.0-5.0	---	---
	21-24	5.1-6.5	0.0-0.5	1.0-5.0	---	---
	24-80	5.6-7.8	0.0-0.5	6.0-22	---	---
Ingalls---------	0-4	3.5-5.5	50-90	---	---	---
	4-5	4.5-6.5	2.0-5.0	---	4.0-20	---
	5-14	4.5-6.5	0.5-2.0	---	1.0-4.0	---
	14-16	4.5-6.5	2.0-5.0	---	4.0-16	---
	16-35	4.5-6.5	0.5-2.0	---	1.0-8.0	---
	35-80	5.6-6.5	0.0-0.5	1.0-9.0	---	---
142C:						
Wallace---------	0-4	3.5-5.5	50-90	---	---	---
	4-5	3.5-5.5	2.0-5.0	---	2.0-4.0	---
	5-22	3.5-5.5	0.5-2.0	---	2.0-4.0	---
	22-31	4.5-5.5	2.0-5.0	---	1.0-4.0	---
	31-37	4.5-5.5	1.0-4.0	---	1.0-4.0	---
	37-62	4.0-5.5	0.5-3.0	---	1.0-4.0	---
	62-74	4.5-6.0	0.0-0.5	1.0-4.0	---	---
	74-80	4.5-6.5	0.0-0.5	1.0-4.0	---	---
Rubicon---------	0-1	3.5-5.5	50-90	---	---	---
	1-7	4.5-6.0	0.5-2.0	---	0.2-5.0	0
	7-34	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	34-44	4.5-6.5	0.0-0.5	0.2-4.0	---	0
	44-80	4.5-6.5	0.0-0.5	0.2-4.0	---	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
142F:						
Wallace---------	0-4	3.5-5.5	50-90	---	---	---
	4-5	3.5-5.5	2.0-5.0	---	2.0-4.0	---
	5-22	3.5-5.5	0.5-2.0	---	2.0-4.0	---
	22-31	4.5-5.5	2.0-5.0	---	1.0-4.0	---
	31-37	4.5-5.5	1.0-4.0	---	1.0-4.0	---
	37-62	4.0-5.5	0.5-3.0	---	1.0-4.0	---
	62-74	4.5-6.0	0.0-0.5	1.0-4.0	---	---
	74-80	4.5-6.5	0.0-0.5	1.0-4.0	---	---
Rubicon---------	0-1	3.5-5.5	50-90	---	---	---
	1-7	4.5-6.0	0.5-2.0	---	0.2-5.0	0
	7-34	4.5-6.0	0.5-3.0	1.0-9.0	---	0
	34-44	4.5-6.5	0.0-0.5	0.2-4.0	---	0
	44-80	4.5-6.5	0.0-0.5	0.2-4.0	---	0
155C:						
Montreal--------	0-2	3.5-6.0	50-90	---	---	---
	2-6	3.5-6.0	0.5-2.0	---	4.0-20	0
	6-11	3.5-6.0	2.0-5.0	---	1.0-12	0
	11-20	3.5-6.0	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	33-51	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	51-80	4.5-6.5	0.0-0.5	0.0-3.0	---	0
Paavola---------	0-2	4.5-6.0	50-90	---	---	---
	2-6	4.5-6.0	2.0-5.0	---	4.0-16	0
	6-12	4.5-6.0	2.0-5.0	---	4.0-12	0
	12-27	4.5-6.0	0.5-3.0	1.0-6.0	---	0
	27-35	4.5-6.0	0.0-0.5	---	4.0-12	0
	35-46	4.5-6.0	0.0-0.5	---	4.0-12	0
	46-80	5.1-6.5	0.0-0.5	3.0-8.0	---	0
Waiska----------	0-1	3.5-5.5	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	1.0-6.0	0
	7-23	3.5-6.0	2.0-5.0	---	4.0-12	0
	23-35	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	35-60	5.1-6.0	0.0-0.5	---	0.0-3.0	0
	60-80	5.1-6.0	0.0-0.5	---	0.0-3.0	0
155E:						
Montreal--------	0-2	3.5-6.0	50-90	---	---	---
	2-6	3.5-6.0	0.5-2.0	---	4.0-20	0
	6-11	3.5-6.0	2.0-5.0	---	1.0-12	0
	11-20	3.5-6.0	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	33-51	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	51-80	4.5-6.5	0.0-0.5	0.0-3.0	---	0
Paavola---------	0-2	4.5-6.0	50-90	---	---	---
	2-6	4.5-6.0	2.0-5.0	---	4.0-16	0
	6-12	4.5-6.0	2.0-5.0	---	4.0-12	0
	12-27	4.5-6.0	0.5-3.0	1.0-6.0	---	0
	27-35	4.5-6.0	0.0-0.5	---	4.0-12	0
	35-46	4.5-6.0	0.0-0.5	---	4.0-12	0
	46-80	5.1-6.5	0.0-0.5	3.0-8.0	---	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
155E:						
Waiska----------	0-1	3.5-5.5	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	1.0-6.0	0
	7-23	3.5-6.0	2.0-5.0	---	4.0-12	0
	23-35	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	35-60	5.1-6.0	0.0-0.5	---	0.0-3.0	0
	60-80	5.1-6.0	0.0-0.5	---	0.0-3.0	0
158A:						
Arnheim---------	0-4	5.1-7.3	2.0-4.0	5.0-20	---	0
	4-9	5.1-7.3	0.2-1.0	2.0-10	---	0
	9-22	5.1-7.3	0.2-1.0	2.0-10	---	0
	22-35	5.1-7.3	0.2-1.0	2.0-10	---	0
	35-50	5.1-7.3	0.0-0.5	2.0-10	---	0
	50-60	5.1-7.3	0.0-0.5	2.0-10	---	0
Sturgeon--------	0-2	4.5-6.5	50-90	---	---	---
	2-16	4.5-6.5	0.5-1.0	2.0-10	---	0
	16-42	4.5-6.5	0.5-1.0	2.0-10	---	0
	42-48	4.5-6.5	0.5-1.0	2.0-10	---	0
	48-60	4.5-6.5	0.2-1.0	1.0-5.0	---	0
Pelkie----------	0-6	4.5-6.5	2.0-5.0	4.0-10	---	0
	6-22	4.5-6.5	0.2-1.0	1.0-2.0	---	0
	22-80	4.5-6.5	0.2-1.0	1.0-2.0	---	0
161F:						
Trimountain-----	0-2	3.5-6.0	50-90	---	---	---
	2-6	3.6-6.0	0.5-2.0	---	4.0-20	0
	6-11	3.6-6.0	2.0-5.0	---	1.0-12	0
	11-20	3.6-6.0	0.5-3.0	---	1.0-12	0
	20-33	3.6-6.0	0.0-0.5	---	1.0-5.0	0
	33-51	3.6-6.0	0.0-0.5	---	1.0-5.0	0
	51-80	3.6-6.0	0.0-0.5	---	1.0-5.0	0
Lac La Belle----	0-1	3.5-5.0	50-90	---	---	---
	1-5	3.5-5.0	0.5-2.0	---	4.0-16	0
	5-12	3.5-5.0	2.0-5.0	---	4.0-16	0
	12-36	3.5-5.0	0.5-3.0	---	4.0-16	0
	36-42	4.5-6.0	0.0-0.5	---	4.0-12	0
	42-50	4.5-6.0	0.0-0.5	---	4.0-12	0
	50-62	4.5-6.0	0.0-0.5	---	4.0-12	0
	62-80	5.1-6.5	0.0-0.5	3.0-8.0	---	0
Waiska----------	0-1	3.5-5.5	50-90	---	---	---
	1-7	3.5-6.0	0.5-2.0	---	1.0-6.0	0
	7-23	3.5-6.0	2.0-5.0	---	4.0-12	0
	23-35	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	35-60	5.1-6.0	0.0-0.5	---	0.0-3.0	0
	60-80	5.1-6.0	0.0-0.5	---	0.0-3.0	0
162F:						
Trimountain-----	0-2	3.5-6.0	50-90	---	---	---
	2-6	3.6-6.0	0.5-2.0	---	4.0-20	0
	6-11	3.6-6.0	2.0-5.0	---	1.0-12	0
	11-20	3.6-6.0	0.5-3.0	---	1.0-12	0
	20-33	3.6-6.0	0.0-0.5	---	1.0-5.0	0
	33-51	3.6-6.0	0.0-0.5	---	1.0-5.0	0
	51-80	3.6-6.0	0.0-0.5	---	1.0-5.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
162F:						
Lac La Belle----	0-1	3.5-5.0	50-90	---	---	---
	1-5	3.5-5.0	0.5-2.0	---	4.0-16	0
	5-12	3.5-5.0	2.0-5.0	---	4.0-16	0
	12-36	3.5-5.0	0.5-3.0	---	4.0-16	0
	36-42	4.5-6.0	0.0-0.5	---	4.0-12	0
	42-50	4.5-6.0	0.0-0.5	---	4.0-12	0
	50-62	4.5-6.0	0.0-0.5	---	4.0-12	0
	62-80	5.1-6.5	0.0-0.5	3.0-8.0	---	0
Michigamme------	0-1	3.5-5.0	50-90	---	---	---
	1-4	3.5-6.5	0.5-2.0	---	3.0-20	0
	4-10	3.5-6.5	2.0-5.0	---	3.0-15	0
	10-22	3.5-6.5	0.5-3.0	---	3.0-15	0
	22-30	4.5-6.5	0.5-3.0	1.0-5.0	---	0
	>30	---	---	---	---	---
166B:						
Gratiot---------	0-1	3.6-6.0	50-90	---	---	---
	1-4	3.6-6.0	2.0-5.0	5.0-7.0	3.0-5.0	0
	4-7	3.6-6.0	2.0-5.0	4.0-11	3.0-8.0	0
	7-12	3.6-6.0	0.5-3.0	4.0-11	3.0-8.0	0
	12-20	3.6-6.0	0.5-3.0	4.0-11	3.0-8.0	0
	20-30	3.6-6.0	0.0-0.5	5.0-15	4.0-11	0
	30-80	5.1-6.5	0.0-0.5	3.0-6.0	2.0-5.0	0
Sabattis--------	0-8	4.5-6.0	75-90	---	100-140	---
	8-12	4.5-6.0	2.0-5.0	---	30-40	0
	12-17	4.5-6.0	0.0-0.5	---	30-40	0
	17-32	4.5-6.0	0.0-0.5	---	1.0-8.0	0
	32-37	5.1-6.5	0.0-0.5	1.0-3.0	---	0
	37-80	5.1-6.5	0.0-0.5	1.0-3.0	---	0
173C:						
Montreal--------	0-2	3.5-6.0	50-90	---	---	---
	2-6	3.5-6.0	0.5-2.0	---	4.0-20	0
	6-11	3.5-6.0	2.0-5.0	---	1.0-12	0
	11-20	3.5-6.0	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	33-51	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	51-80	4.5-6.5	0.0-0.5	0.0-3.0	---	0
Paavola---------	0-2	4.5-6.0	50-90	---	---	---
	2-6	4.5-6.0	2.0-5.0	---	4.0-16	0
	6-12	4.5-6.0	2.0-5.0	---	4.0-12	0
	12-27	4.5-6.0	0.5-3.0	1.0-6.0	---	0
	27-35	4.5-6.0	0.0-0.5	---	4.0-12	0
	35-46	4.5-6.0	0.0-0.5	---	4.0-12	0
	46-80	5.1-6.5	0.0-0.5	3.0-8.0	---	0
Dishno----------	0-1	3.5-5.5	50-90	---	---	---
	1-3	3.5-5.5	2.0-5.0	---	2.0-10	0
	3-4	3.5-5.5	0.5-2.0	---	2.0-10	0
	4-8	3.5-5.5	2.0-5.0	---	2.0-10	0
	8-26	3.5-5.5	0.5-3.0	---	2.0-10	0
	26-31	4.5-6.0	0.0-0.5	---	1.0-10	0
	31-42	4.5-6.0	0.0-0.5	---	1.0-10	0
	>42	---	---	---	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
173E:						
Montreal--------	0-2	3.5-6.0	50-90	---	---	---
	2-6	3.5-6.0	0.5-2.0	---	4.0-20	0
	6-11	3.5-6.0	2.0-5.0	---	1.0-12	0
	11-20	3.5-6.0	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	33-51	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	51-80	4.5-6.5	0.0-0.5	0.0-3.0	---	0
Paavola---------	0-2	4.5-6.0	50-90	---	---	---
	2-6	4.5-6.0	2.0-5.0	---	4.0-16	0
	6-12	4.5-6.0	2.0-5.0	---	4.0-12	0
	12-27	4.5-6.0	0.5-3.0	1.0-6.0	---	0
	27-35	4.5-6.0	0.0-0.5	---	4.0-12	0
	35-46	4.5-6.0	0.0-0.5	---	4.0-12	0
	46-80	5.1-6.5	0.0-0.5	3.0-8.0	---	0
Dishno----------	0-1	3.5-5.5	50-90	---	---	---
	1-3	3.5-5.5	2.0-5.0	---	2.0-10	0
	3-4	3.5-5.5	0.5-2.0	---	2.0-10	0
	4-8	3.5-5.5	2.0-5.0	---	2.0-10	0
	8-26	3.5-5.5	0.5-3.0	---	2.0-10	0
	26-31	4.5-6.0	0.0-0.5	---	1.0-10	0
	31-42	4.5-6.0	0.0-0.5	---	1.0-10	0
	>42	---	---	---	---	---
174B:						
Montreal--------	0-2	3.5-6.0	50-90	---	---	---
	2-6	3.5-6.0	0.5-2.0	---	4.0-20	0
	6-11	3.5-6.0	2.0-5.0	---	1.0-12	0
	11-20	3.5-6.0	0.5-3.0	---	1.0-12	0
	20-33	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	33-51	3.5-6.0	0.0-0.5	---	1.0-5.0	0
	51-80	4.5-6.5	0.0-0.5	0.0-3.0	---	0
Dishno----------	0-1	3.5-5.5	50-90	---	---	---
	1-3	3.5-5.5	2.0-5.0	---	2.0-10	0
	3-4	3.5-5.5	0.5-2.0	---	2.0-10	0
	4-8	3.5-5.5	2.0-5.0	---	2.0-10	0
	8-26	3.5-5.5	0.5-3.0	---	2.0-10	0
	26-31	4.5-6.0	0.0-0.5	---	1.0-10	0
	31-42	4.5-6.0	0.0-0.5	---	1.0-10	0
	>42	---	---	---	---	---
Gratiot---------	0-1	3.6-6.0	50-90	---	---	---
	1-4	3.6-6.0	2.0-5.0	5.0-7.0	3.0-5.0	0
	4-7	3.6-6.0	2.0-5.0	4.0-11	3.0-8.0	0
	7-12	3.6-6.0	0.5-3.0	4.0-11	3.0-8.0	0
	12-20	3.6-6.0	0.5-3.0	4.0-11	3.0-8.0	0
	20-30	3.6-6.0	0.0-0.5	5.0-15	4.0-11	0
	30-80	5.1-6.5	0.0-0.5	3.0-6.0	2.0-5.0	0
177A:						
Assinins--------	0-2	4.5-6.0	50-90	---	---	---
	2-11	4.5-6.0	1.0-3.0	1.0-10	0.4-3.0	0
	11-15	4.5-6.0	1.0-3.0	1.0-10	0.4-3.0	0
	15-24	4.5-6.0	1.0-3.0	1.0-10	0.4-3.0	0
	24-37	5.1-6.0	0.0-0.5	2.0-4.0	---	0
	37-80	4.5-6.0	0.0-0.5	---	1.0-3.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
183C:						
Munising--------	0-2	4.5-5.5	50-90	---	---	---
	2-4	4.5-5.5	50-90	---	---	---
	4-11	4.5-6.0	0.5-2.0	---	1.0-8.0	---
	11-13	4.5-6.0	2.0-5.0	---	6.0-16	---
	13-18	4.5-6.0	0.5-3.0	---	3.0-12	---
	18-31	4.5-6.0	0.0-0.5	---	2.0-8.0	---
	31-51	4.5-6.0	0.0-0.5	---	6.0-21	---
	51-80	5.6-6.5	0.0-0.5	3.0-9.0	---	---
Abbaye----------	0-1	4.5-6.0	50-90	---	---	---
	1-5	4.5-6.0	0.5-2.0	---	1.0-10	0
	5-11	4.5-6.0	0.5-3.0	3.0-12	---	0
	11-18	4.5-6.0	0.5-3.0	3.0-12	---	0
	18-28	4.5-6.0	0.0-0.5	4.0-10	---	0
	28-30	---	---	---	---	---
	30-80	---	---	---	---	---
Yalmer----------	0-1	3.5-6.0	50-90	---	---	---
	1-6	3.5-6.0	0.5-3.0	---	1.0-6.0	0
	6-13	3.5-6.0	2.0-5.0	---	4.0-12	0
	13-28	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	28-43	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	43-52	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	52-80	5.6-6.5	0.0-0.5	4.0-12	---	0
183E:						
Munising--------	0-2	4.5-5.5	50-90	---	---	---
	2-4	4.5-5.5	50-90	---	---	---
	4-11	4.5-6.0	0.5-2.0	---	1.0-8.0	---
	11-13	4.5-6.0	2.0-5.0	---	6.0-16	---
	13-18	4.5-6.0	0.5-3.0	---	3.0-12	---
	18-31	4.5-6.0	0.0-0.5	---	2.0-8.0	---
	31-51	4.5-6.0	0.0-0.5	---	6.0-21	---
	51-80	5.6-6.5	0.0-0.5	3.0-9.0	---	---
Abbaye----------	0-1	4.5-6.0	50-90	---	---	---
	1-5	4.5-6.0	0.5-2.0	---	1.0-10	0
	5-11	4.5-6.0	0.5-3.0	3.0-12	---	0
	11-18	4.5-6.0	0.5-3.0	3.0-12	---	0
	18-28	4.5-6.0	0.0-0.5	4.0-10	---	0
	28-30	---	---	---	---	---
	30-80	---	---	---	---	---
Yalmer----------	0-1	3.5-6.0	50-90	---	---	---
	1-6	3.5-6.0	0.5-3.0	---	1.0-6.0	0
	6-13	3.5-6.0	2.0-5.0	---	4.0-12	0
	13-28	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	28-43	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	43-52	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	52-80	5.6-6.5	0.0-0.5	4.0-12	---	0
184C:						
Munising--------	0-2	4.5-5.5	50-90	---	---	---
	2-4	4.5-5.5	50-90	---	---	---
	4-11	4.5-6.0	0.5-2.0	---	1.0-8.0	---
	11-13	4.5-6.0	2.0-5.0	---	6.0-16	---
	13-18	4.5-6.0	0.5-3.0	---	3.0-12	---
	18-31	4.5-6.0	0.0-0.5	---	2.0-8.0	---
	31-51	4.5-6.0	0.0-0.5	---	6.0-21	---
	51-80	5.6-6.5	0.0-0.5	3.0-9.0	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
184C:						
Yalmer----------	0-1	3.5-6.0	50-90	---	---	---
	1-6	3.5-6.0	0.5-3.0	---	1.0-6.0	0
	6-13	3.5-6.0	2.0-5.0	---	4.0-12	0
	13-28	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	28-43	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	43-52	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	52-80	5.6-6.5	0.0-0.5	4.0-12	---	0
184E:						
Munising--------	0-2	4.5-5.5	50-90	---	---	---
	2-4	4.5-5.5	50-90	---	---	---
	4-11	4.5-6.0	0.5-2.0	---	1.0-8.0	---
	11-13	4.5-6.0	2.0-5.0	---	6.0-16	---
	13-18	4.5-6.0	0.5-3.0	---	3.0-12	---
	18-31	4.5-6.0	0.0-0.5	---	2.0-8.0	---
	31-51	4.5-6.0	0.0-0.5	---	6.0-21	---
	51-80	5.6-6.5	0.0-0.5	3.0-9.0	---	---
Yalmer----------	0-1	3.5-6.0	50-90	---	---	---
	1-6	3.5-6.0	0.5-3.0	---	1.0-6.0	0
	6-13	3.5-6.0	2.0-5.0	---	4.0-12	0
	13-28	3.5-6.0	0.5-3.0	---	1.0-8.0	0
	28-43	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	43-52	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	52-80	5.6-6.5	0.0-0.5	4.0-12	---	0
185B:						
Munising--------	0-2	4.5-5.5	50-90	---	---	---
	2-4	4.5-5.5	50-90	---	---	---
	4-11	4.5-6.0	0.5-2.0	---	1.0-8.0	---
	11-13	4.5-6.0	2.0-5.0	---	6.0-16	---
	13-18	4.5-6.0	0.5-3.0	---	3.0-12	---
	18-31	4.5-6.0	0.0-0.5	---	2.0-8.0	---
	31-51	4.5-6.0	0.0-0.5	---	6.0-21	---
	51-80	5.6-6.5	0.0-0.5	3.0-9.0	---	---
Skanee----------	0-2	3.5-5.5	50-90	---	---	---
	2-8	3.5-5.5	2.0-5.0	---	4.0-16	0
	8-14	3.5-6.0	2.0-5.0	---	4.0-16	0
	14-31	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	31-42	3.5-6.0	0.0-0.5	6.0-21	---	0
	42-80	4.5-6.0	0.0-0.5	3.0-9.0	---	0
185C:						
Munising--------	0-2	4.5-5.5	50-90	---	---	---
	2-4	4.5-5.5	50-90	---	---	---
	4-11	4.5-6.0	0.5-2.0	---	1.0-8.0	---
	11-13	4.5-6.0	2.0-5.0	---	6.0-16	---
	13-18	4.5-6.0	0.5-3.0	---	3.0-12	---
	18-31	4.5-6.0	0.0-0.5	---	2.0-8.0	---
	31-51	4.5-6.0	0.0-0.5	---	6.0-21	---
	51-80	5.6-6.5	0.0-0.5	3.0-9.0	---	---
Skanee----------	0-2	3.5-5.5	50-90	---	---	---
	2-8	3.5-5.5	2.0-5.0	---	4.0-16	0
	8-14	3.5-6.0	2.0-5.0	---	4.0-16	0
	14-31	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	31-42	3.5-6.0	0.0-0.5	6.0-21	---	0
	42-80	4.5-6.0	0.0-0.5	3.0-9.0	---	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
187A:						
Skanee----------	0-2	3.5-5.5	50-90	---	---	---
	2-8	3.5-5.5	2.0-5.0	---	4.0-16	0
	8-14	3.5-6.0	2.0-5.0	---	4.0-16	0
	14-31	3.5-6.0	0.0-0.5	---	2.0-8.0	0
	31-42	3.5-6.0	0.0-0.5	6.0-21	---	0
	42-80	4.5-6.0	0.0-0.5	3.0-9.0	---	0
Gay-------------	0-4	4.5-6.0	75-90	---	---	---
	4-7	4.5-6.5	2.0-30	---	4.0-65	0
	7-11	4.5-6.5	0.5-2.0	2.0-10	---	0
	11-16	4.5-6.5	0.5-1.0	3.0-22	---	0
	16-30	5.6-7.3	0.0-0.5	3.0-8.0	---	0
	30-60	5.6-7.3	0.0-0.5	3.0-8.0	---	0
192B:						
Nipissing-------	0-1	3.5-5.5	50-90	---	---	---
	1-3	4.5-6.0	50-90	---	---	---
	3-4	5.1-6.5	0.5-2.0	5.0-15	---	0
	4-20	5.1-6.5	2.0-5.0	5.0-15	---	0
	20-29	5.1-6.5	2.0-5.0	5.0-15	---	0
	29-35	5.1-6.5	2.0-5.0	5.0-15	---	0
	35-39	5.1-6.5	2.0-5.0	5.0-15	---	0
	>39	---	---	---	---	---
Arcadian--------	0-3	4.5-6.0	50-90	---	---	---
	3-5	5.1-6.5	0.5-2.0	5.0-15	---	0
	5-12	5.1-6.5	2.0-5.0	5.0-15	---	0
	12-22	---	---	---	---	---
Rock outcrop.						
194B:						
Copper Harbor---	0-1	5.1-6.0	50-90	---	---	---
	1-5	5.1-5.7	0.5-2.0	1.0-4.0	0.8-3.0	---
	5-14	5.5-6.2	2.0-4.0	1.0-5.0	0.8-4.5	---
	14-30	5.5-6.2	0.5-3.0	1.0-5.0	0.8-4.5	---
	30-40	5.5-6.2	0.0-0.5	1.0-3.0	0.8-2.3	---
	40-60	6.0-6.7	0.0-0.5	3.0-5.0	2.3-3.8	---
	60-80	6.2-6.7	0.0-0.5	3.0-5.0	2.3-3.8	---
195B:						
Copper Harbor---	0-1	5.1-6.0	50-90	---	---	---
	1-5	5.1-5.7	0.5-2.0	1.0-4.0	0.8-3.0	---
	5-14	5.5-6.2	2.0-4.0	1.0-5.0	0.8-4.5	---
	14-30	5.5-6.2	0.5-3.0	1.0-5.0	0.8-4.5	---
	30-40	5.5-6.2	0.0-0.5	1.0-3.0	0.8-2.3	---
	40-60	6.0-6.7	0.0-0.5	3.0-5.0	2.3-3.8	---
	60-80	6.2-6.7	0.0-0.5	3.0-5.0	2.3-3.8	---
Bete Grise------	0-2	4.5-6.0	50-90	---	---	---
	2-5	5.6-6.0	0.5-2.0	1.0-4.0	0.0-3.0	0
	5-17	5.6-6.0	1.0-5.0	1.0-10	0.0-7.0	0
	17-32	5.6-6.0	1.0-5.0	1.0-10	0.0-7.0	0
	32-36	5.6-6.0	0.0-2.0	1.0-4.0	0.0-3.0	0
	36-59	5.6-6.5	0.0-0.5	1.0-4.0	0.0-3.0	0
	59-80	5.6-6.5	0.0-0.5	1.0-4.0	0.0-3.0	0

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
196B:						
Bete Grise------	0-2	4.5-6.0	50-90	---	---	---
	2-5	5.6-6.0	0.5-2.0	1.0-4.0	0.0-3.0	0
	5-17	5.6-6.0	1.0-5.0	1.0-10	0.0-7.0	0
	17-32	5.6-6.0	1.0-5.0	1.0-10	0.0-7.0	0
	32-36	5.6-6.0	0.0-2.0	1.0-4.0	0.0-3.0	0
	36-59	5.6-6.5	0.0-0.5	1.0-4.0	0.0-3.0	0
	59-80	5.6-6.5	0.0-0.5	1.0-4.0	0.0-3.0	0
Tawas-----------	0-6	4.5-6.5	75-90	80-120	---	0
	6-25	4.5-7.3	80-95	80-120	---	0
	25-80	5.6-8.4	0.0-0.0	1.0-3.0	---	0
301:						
Udorthents------	0-79	4.5-6.5	0.0-0.5	---	---	0
Udipsamments----	0-79	5.1-6.5	0.0-0.5	---	---	---
302:						
Histosols-------	0-51	4.5-6.5	75-90	---	---	---
	51-80	4.5-6.5	---	---	---	---
Aquents---------	0-79	4.5-6.5	0.1-5.0	---	---	---
303:						
Aquents---------	0-79	4.5-6.5	0.1-5.0	---	---	---
Dumps, stamp sand-----------	0-80	4.5-6.5	0.0-0.1	---	---	---
310. Dumps, mine						
311:						
Dumps, stamp sand-----------	0-80	4.5-6.5	0.0-0.1	---	---	---
312. Pits						
313. Dumps, sawdust						
W. Water						

Table 18.--Soil Moisture Status by Depth

(Depths of layers are in feet)

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
2:												
Lupton----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Tawas-----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
3:												
Dawson----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Loxley----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
6:												
Skandia---------	0.0-2.6: Wet ---	0.0-2.6: Wet ---	0.0-2.6: Wet ---	0.0-2.6: Wet ---	0.0-2.6: Wet ---	0.0-2.6: Wet ---	0.0-0.5: Moist 0.5-2.6: Wet	0.0-1.0: Moist 1.0-2.6: Wet	0.0-0.5: Moist 0.5-2.6: Wet	0.0-2.6: Wet ---	0.0-2.6: Wet ---	0.0-2.6: Wet ---
Burt------------	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-0.5: Moist 0.5-1.6: Wet	0.0-1.0: Moist 1.0-1.6: Wet	0.0-1.6: Moist ---	0.0-1.5: Moist 1.5-1.6: Wet	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-1.6: Wet ---
10:												
Cathro----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Sabattis--------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
13:												
Tawas-----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
15B:												
Dawson----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Croswell--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
20E. Rock outcrop												
21G: Rock outcrop.												
Arcadian--------	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Dry	0.0-1.0: Dry	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist
39A:												
Betsy Bay-------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
Burt------------	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-0.5: Moist 0.5-1.6: Wet	0.0-1.0: Moist 1.0-1.6: Wet	0.0-1.6: Moist ---	0.0-1.5: Moist 1.5-1.6: Wet	0.0-1.6: Wet ---	0.0-1.6: Wet ---	0.0-1.6: Wet ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
39A:												
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
47A:												
Zeba------------	0.0-2.0: Moist 2.0-2.8: Wet	0.0-2.0: Moist 2.0-2.8: Wet	0.0-1.5: Moist 1.5-2.8: Wet	0.0-1.0: Moist 1.0-2.8: Wet	0.0-0.5: Moist 0.5-2.8: Wet	0.0-2.0: Moist 2.0-2.8: Wet	0.0-2.5: Moist 2.5-2.8: Wet	0.0-2.8: Moist ---	0.0-2.5: Moist 2.5-2.8: Wet	0.0-1.0: Moist 1.0-2.8: Wet	0.0-1.0: Moist 1.0-2.8: Wet	0.0-1.5: Moist 1.5-2.8: Wet
Jacobsville-----	0.0-3.0: Wet ---	0.0-3.0: Wet ---	0.0-3.0: Wet ---	0.0-3.0: Wet ---	0.0-3.0: Wet ---	0.0-0.5: Moist 0.5-3.0: Wet	0.0-1.0: Moist 1.0-3.0: Wet	0.0-2.0: Moist 2.0-3.0: Wet	1.5-3.0: Wet 0.0-1.5: Moist	0.0-3.0: Wet ---	0.0-3.0: Wet ---	0.0-3.0: Wet ---
51C:												
Arcadian--------	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Dry	0.0-1.0: Dry	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist
Nipissing-------	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-1.0: Dry 1.0-3.2: Moist	0.0-1.5: Dry 1.5-3.2: Moist	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---
Rock outcrop.												
51E:												
Arcadian--------	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Dry	0.0-1.0: Dry	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist
Nipissing-------	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-1.0: Dry 1.0-3.2: Moist	0.0-1.5: Dry 1.5-3.2: Moist	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---
Rock outcrop.												
52C:												
Arcadian--------	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Dry	0.0-1.0: Dry	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
52C:												
Dishno----------	0.0-3.8: Moist ---	0.0-3.8: Moist ---	0.0-2.0: Moist 2.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-1.5: Moist 1.5-3.8: Wet	0.0-3.8: Moist ---	0.0-1.0: Dry 1.0-3.8: Moist	0.0-1.5: Dry 1.5-3.8: Moist	0.0-3.0: Moist 3.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-2.0: Moist 2.0-3.8: Wet	0.0-3.8: Moist ---
Rock outcrop.												
52E:												
Arcadian--------	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Dry	0.0-1.0: Dry	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist
Dishno----------	0.0-3.8: Moist ---	0.0-3.8: Moist ---	0.0-2.0: Moist 2.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-1.5: Moist 1.5-3.8: Wet	0.0-3.8: Moist ---	0.0-1.0: Dry 1.0-3.8: Moist	0.0-1.5: Dry 1.5-3.8: Moist	0.0-3.0: Moist 3.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-2.0: Moist 2.0-3.8: Wet	0.0-3.8: Moist ---
Rock outcrop.												
53E:												
Arcadian--------	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Dry	0.0-1.0: Dry	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist
Michigamme------	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-1.0: Dry 1.0-2.6: Moist	0.0-1.5: Dry 1.5-2.6: Moist	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---
Rock outcrop.												
53F:												
Arcadian--------	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Dry	0.0-1.0: Dry	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist
Michigamme------	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-1.0: Dry 1.0-2.6: Moist	0.0-1.5: Dry 1.5-2.6: Moist	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---
Rock outcrop.												
55B:												
Chocolay--------	0.0-2.3: Moist ---	0.0-2.3: Moist ---	0.0-2.0: Moist 2.0-2.3: Wet	0.0-1.0: Moist 1.0-2.3: Wet	0.0-1.5: Moist 1.5-2.3: Wet	0.0-2.3: Moist ---	0.0-1.0: Dry 1.0-2.3: Moist	0.0-1.5: Dry 1.5-2.3: Moist	0.0-2.3: Moist ---	0.0-1.0: Moist 1.0-2.3: Wet	0.0-1.5: Moist 1.5-2.3: Wet	0.0-2.3: Moist ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
100B:												
Waiska	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
100D:												
Waiska	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
102C:												
Waiska	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Garlic	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
102E:												
Waiska	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Garlic	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
102F:												
Waiska	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Garlic	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
110B:												
Shelldrake------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Croswell--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
111B:												
Deer Park-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
111D:												
Deer Park-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
111E:												
Deer Park-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
111F:												
Deer Park-------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
112C:												
Deer Park-------	0.1-2.6: Moist ---	0.1-2.6: Moist ---	0.1-2.6: Moist ---	0.1-2.6: Moist ---	0.1-2.6: Moist ---	0.1-2.6: Moist ---	0.0-0.8: Dry 0.8-2.6: Moist	0.0-1.2: Dry 1.2-2.6: Moist	0.1-2.6: Moist ---	0.1-2.6: Moist ---	0.1-2.6: Moist ---	0.1-2.6: Moist ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
112C:												
Croswell--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
113C:												
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Croswell--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
120B:												
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
120D:												
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
120E:												
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
125A:												
Croswell--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
125A:												
Au Gres---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
126B:												
Au Gres---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
Deford----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
Croswell--------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
127A:												
Au Gres---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
Kinross---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
130C:												
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
130C:												
Alcona----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
130E:												
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Alcona----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
133C:												
Keweenaw--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
133E:												
Keweenaw--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
133F:												
Keweenaw--------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
133F:												
Garlic----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
136B:												
Borgstrom-------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Ingalls---------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
142C:												
Wallace---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
142F:												
Wallace---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Rubicon---------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
155C:												
Montreal--------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-1.0: Moist 1.0-1.7: Wet 1.7-6.7: Moist	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-1.0: Dry 1.0-6.7: Moist ---	0.0-1.5: Dry 1.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---
Paavola---------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-1.0: Moist 1.0-2.6: Wet 2.6-6.7: Moist	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-6.7: Moist --- ---	0.0-2.0: Dry 2.0-6.7: Moist ---	0.0-3.0: Dry 3.0-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-2.0: Moist 2.0-2.6: Wet 2.6-6.7: Moist	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-6.7: Moist --- ---
Waiska----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
155E:												
Montreal--------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-1.0: Moist 1.0-1.7: Wet 1.7-6.7: Moist	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-1.0: Dry 1.0-6.7: Moist ---	0.0-1.5: Dry 1.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---
Paavola---------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-1.0: Moist 1.0-2.6: Wet 2.6-6.7: Moist	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-6.7: Moist --- ---	0.0-2.0: Dry 2.0-6.7: Moist ---	0.0-3.0: Dry 3.0-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-2.0: Moist 2.0-2.6: Wet 2.6-6.7: Moist	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-6.7: Moist --- ---
Waiska----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
158A:												
Arnheim---------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
158A:												
Sturgeon--------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
Pelkie----------	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.5: Moist 4.5-6.7: Wet ---
161F:												
Trimountain-----	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Lac La Belle----	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Waiska----------	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
162F:												
Trimountain-----	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-1.0: Dry 1.0-6.7: Moist	0.0-1.5: Dry 1.5-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Lac La Belle----	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-2.0: Dry 2.0-6.7: Moist	0.0-3.0: Dry 3.0-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Michigamme------	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-1.0: Dry 1.0-2.6: Moist	0.0-1.5: Dry 1.5-2.6: Moist	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---	0.0-2.6: Moist ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
166B:												
Gratiot---------	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-5.0: Moist 5.0-6.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet 1.7-4.5: Moist 4.5-6.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet 1.7-4.5: Moist 4.5-6.7: Wet	0.0-1.0: Moist 1.0-1.7: Wet 1.7-4.5: Moist 4.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-0.5: Dry 0.5-6.7: Moist --- ---	0.0-6.7: Moist --- --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-5.5: Moist 5.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet --- ---
Sabattis--------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
173C:												
Montreal--------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-1.0: Moist 1.0-1.7: Wet 1.7-6.7: Moist	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-1.0: Dry 1.0-6.7: Moist ---	0.0-1.5: Dry 1.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---
Paavola---------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-1.0: Moist 1.0-2.6: Wet 2.6-6.7: Moist	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-6.7: Moist --- ---	0.0-2.0: Dry 2.0-6.7: Moist ---	0.0-3.0: Dry 3.0-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-2.0: Moist 2.0-2.6: Wet 2.6-6.7: Moist	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-6.7: Moist --- ---
Dishno----------	0.0-3.8: Moist ---	0.0-3.8: Moist ---	0.0-2.0: Moist 2.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-1.5: Moist 1.5-3.8: Wet	0.0-3.8: Moist ---	0.0-1.0: Dry 1.0-3.8: Moist	0.0-1.5: Dry 1.5-3.8: Moist	0.0-3.0: Moist 3.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-2.0: Moist 2.0-3.8: Wet	0.0-3.8: Moist ---
173E:												
Montreal--------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-1.0: Moist 1.0-1.7: Wet 1.7-6.7: Moist	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-1.0: Dry 1.0-6.7: Moist ---	0.0-1.5: Dry 1.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
173E:												
Paavola---------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-1.0: Moist 1.0-2.6: Wet 2.6-6.7: Moist	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-6.7: Moist --- ---	0.0-2.0: Dry 2.0-6.7: Moist ---	0.0-3.0: Dry 3.0-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-2.0: Moist 2.0-2.6: Wet 2.6-6.7: Moist	0.0-1.5: Moist 1.5-2.6: Wet 2.6-6.7: Moist	0.0-6.7: Moist --- ---
Dishno----------	0.0-3.8: Moist ---	0.0-3.8: Moist ---	0.0-2.0: Moist 2.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-1.5: Moist 1.5-3.8: Wet	0.0-3.8: Moist ---	0.0-1.0: Dry 1.0-3.8: Moist	0.0-1.5: Dry 1.5-3.8: Moist	0.0-3.0: Moist 3.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-2.0: Moist 2.0-3.8: Wet	0.0-3.8: Moist ---
174B:												
Montreal--------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-1.0: Moist 1.0-1.7: Wet 1.7-6.7: Moist	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-1.0: Dry 1.0-6.7: Moist ---	0.0-1.5: Dry 1.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---
Dishno----------	0.0-3.8: Moist ---	0.0-3.8: Moist ---	0.0-2.0: Moist 2.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-1.5: Moist 1.5-3.8: Wet	0.0-3.8: Moist ---	0.0-1.0: Dry 1.0-3.8: Moist	0.0-1.5: Dry 1.5-3.8: Moist	0.0-3.0: Moist 3.0-3.8: Wet	0.0-1.0: Moist 1.0-3.8: Wet	0.0-2.0: Moist 2.0-3.8: Wet	0.0-3.8: Moist ---
Gratiot---------	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-5.0: Moist 5.0-6.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet 1.7-4.5: Moist 4.5-6.7: Wet	0.0-0.5: Moist 0.5-1.7: Wet 1.7-4.5: Moist 4.5-6.7: Wet	0.0-1.0: Moist 1.0-1.7: Wet 1.7-4.5: Moist 4.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-0.5: Dry 0.5-6.7: Moist --- ---	0.0-6.7: Moist --- --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-5.5: Moist 5.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet --- ---
177A:												
Assinins--------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
183C:												
Munising--------	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.7: Moist	0.0-1.0: Dry	0.0-1.5: Dry	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-6.7: Moist
	---	---	1.5-1.7: Wet	1.0-1.7: Wet	1.5-1.7: Wet	---	1.0-6.7: Moist	1.5-6.7: Moist	---	---	1.5-1.7: Wet	---
	---	---	1.7-6.7: Moist	1.7-6.7: Moist	1.7-6.7: Moist	---	---	---	---	---	1.7-6.7: Moist	---
Abbaye----------	0.0-2.7: Moist	0.0-2.7: Moist	0.0-2.0: Moist	0.0-1.0: Moist	0.0-2.0: Moist	0.0-2.7: Moist	0.0-1.0: Dry	0.0-1.5: Dry	0.0-2.7: Moist	0.0-1.0: Moist	0.0-2.0: Moist	0.0-2.7: Moist
	---	---	2.0-2.7: Wet	1.0-2.7: Wet	2.0-2.7: Wet	---	1.0-2.7: Moist	1.5-2.7: Moist	---	1.0-2.7: Wet	2.0-2.7: Wet	---
Yalmer----------	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.7: Moist	0.0-2.0: Dry	0.0-2.0: Dry	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-6.7: Moist
	---	---	1.5-2.0: Wet	1.0-2.0: Wet	1.5-2.0: Wet	---	2.0-6.7: Moist	2.0-6.7: Moist	---	---	1.5-2.0: Wet	---
	---	---	2.0-6.7: Moist	2.0-6.7: Moist	2.0-6.7: Moist	---	---	---	---	---	2.0-6.7: Moist	---
183E:												
Munising--------	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.7: Moist	0.0-1.0: Dry	0.0-1.5: Dry	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-6.7: Moist
	---	---	1.5-1.7: Wet	1.0-1.7: Wet	1.5-1.7: Wet	---	1.0-6.7: Moist	1.5-6.7: Moist	---	---	1.5-1.7: Wet	---
	---	---	1.7-6.7: Moist	1.7-6.7: Moist	1.7-6.7: Moist	---	---	---	---	---	1.7-6.7: Moist	---
Abbaye----------	0.0-2.7: Moist	0.0-2.7: Moist	0.0-2.0: Moist	0.0-1.0: Moist	0.0-2.0: Moist	0.0-2.7: Moist	0.0-1.0: Dry	0.0-1.5: Dry	0.0-2.7: Moist	0.0-1.0: Moist	0.0-2.0: Moist	0.0-2.7: Moist
	---	---	2.0-2.7: Wet	1.0-2.7: Wet	2.0-2.7: Wet	---	1.0-2.7: Moist	1.5-2.7: Moist	---	1.0-2.7: Wet	2.0-2.7: Wet	---
Yalmer----------	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.7: Moist	0.0-2.0: Dry	0.0-2.0: Dry	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-6.7: Moist
	---	---	1.5-2.0: Wet	1.0-2.0: Wet	1.5-2.0: Wet	---	2.0-6.7: Moist	2.0-6.7: Moist	---	---	1.5-2.0: Wet	---
	---	---	2.0-6.7: Moist	2.0-6.7: Moist	2.0-6.7: Moist	---	---	---	---	---	2.0-6.7: Moist	---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
184C:												
Munising	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.7: Moist	0.0-1.0: Dry	0.0-1.5: Dry	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-6.7: Moist
	---	---	1.5-1.7: Wet	1.0-1.7: Wet	1.5-1.7: Wet	---	1.0-6.7: Moist	1.5-6.7: Moist	---	---	1.5-1.7: Wet	---
	---	---	1.7-6.7: Moist	1.7-6.7: Moist	1.7-6.7: Moist	---	---	---	---	---	1.7-6.7: Moist	---
Yalmer	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.7: Moist	0.0-2.0: Dry	0.0-2.0: Dry	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-6.7: Moist
	---	---	1.5-2.0: Wet	1.0-2.0: Wet	1.5-2.0: Wet	---	2.0-6.7: Moist	2.0-6.7: Moist	---	---	1.5-2.0: Wet	---
	---	---	2.0-6.7: Moist	2.0-6.7: Moist	2.0-6.7: Moist	---	---	---	---	---	2.0-6.7: Moist	---
184E:												
Munising	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.7: Moist	0.0-1.0: Dry	0.0-1.5: Dry	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-6.7: Moist
	---	---	1.5-1.7: Wet	1.0-1.7: Wet	1.5-1.7: Wet	---	1.0-6.7: Moist	1.5-6.7: Moist	---	---	1.5-1.7: Wet	---
	---	---	1.7-6.7: Moist	1.7-6.7: Moist	1.7-6.7: Moist	---	---	---	---	---	1.7-6.7: Moist	---
Yalmer	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.7: Moist	0.0-2.0: Dry	0.0-2.0: Dry	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-6.7: Moist
	---	---	1.5-2.0: Wet	1.0-2.0: Wet	1.5-2.0: Wet	---	2.0-6.7: Moist	2.0-6.7: Moist	---	---	1.5-2.0: Wet	---
	---	---	2.0-6.7: Moist	2.0-6.7: Moist	2.0-6.7: Moist	---	---	---	---	---	2.0-6.7: Moist	---
185B:												
Munising	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.7: Moist	0.0-1.0: Dry	0.0-1.5: Dry	0.0-6.7: Moist	0.0-6.7: Moist	0.0-1.5: Moist	0.0-6.7: Moist
	---	---	1.5-1.7: Wet	1.0-1.7: Wet	1.5-1.7: Wet	---	1.0-6.7: Moist	1.5-6.7: Moist	---	---	1.5-1.7: Wet	---
	---	---	1.7-6.7: Moist	1.7-6.7: Moist	1.7-6.7: Moist	---	---	---	---	---	1.7-6.7: Moist	---
Skanee	0.0-5.5: Moist	0.0-5.5: Moist	0.0-5.0: Moist	0.0-0.5: Moist	0.0-0.5: Moist	0.0-1.0: Moist	0.0-5.5: Moist	0.0-0.5: Dry	0.0-6.7: Moist	0.0-5.5: Moist	0.0-5.5: Moist	0.0-5.5: Moist
	5.5-6.7: Wet	5.5-6.7: Wet	5.0-6.7: Wet	0.5-1.2: Wet	0.5-1.2: Wet	1.0-1.2: Wet	5.5-6.7: Wet	0.5-6.7: Moist	---	5.5-6.7: Wet	5.5-6.7: Wet	5.5-6.7: Wet
	---	---	---	1.2-4.5: Moist	1.2-4.5: Moist	1.2-4.5: Moist	---	---	---	---	---	---
	---	---	---	4.5-6.7: Wet	4.5-6.7: Wet	4.5-6.7: Wet	---	---	---	---	---	---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
185C:												
Munising--------	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-1.0: Moist 1.0-1.7: Wet 1.7-6.7: Moist	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-1.0: Dry 1.0-6.7: Moist ---	0.0-1.5: Dry 1.5-6.7: Moist ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-1.5: Moist 1.5-1.7: Wet 1.7-6.7: Moist	0.0-6.7: Moist --- ---
Skanee----------	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.0: Moist 5.0-6.7: Wet --- ---	0.0-0.5: Moist 0.5-1.2: Wet 1.2-4.5: Moist 4.5-6.7: Wet	0.0-0.5: Moist 0.5-1.2: Wet 1.2-4.5: Moist 4.5-6.7: Wet	0.0-1.0: Moist 1.0-1.2: Wet 1.2-4.5: Moist 4.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-0.5: Dry 0.5-6.7: Moist --- ---	0.0-6.7: Moist --- --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---
187A:												
Skanee----------	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.0: Moist 5.0-6.7: Wet --- ---	0.0-0.5: Moist 0.5-1.2: Wet 1.2-4.5: Moist 4.5-6.7: Wet	0.0-0.5: Moist 0.5-1.2: Wet 1.2-4.5: Moist 4.5-6.7: Wet	0.0-1.0: Moist 1.0-1.2: Wet 1.2-4.5: Moist 4.5-6.7: Wet	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-0.5: Dry 0.5-6.7: Moist --- ---	0.0-6.7: Moist --- --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---	0.0-5.5: Moist 5.5-6.7: Wet --- ---
Gay-------------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
192B:												
Nipissing-------	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-1.0: Dry 1.0-3.2: Moist	0.0-1.5: Dry 1.5-3.2: Moist	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---	0.0-3.2: Moist ---
Arcadian--------	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Dry	0.0-1.0: Dry	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist
Rock outcrop.												

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
194B:												
Copper Harbor---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
195B:												
Copper Harbor---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-5.0: Moist 5.0-6.7: Wet ---	0.0-2.5: Moist 2.5-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-3.5: Moist 3.5-6.7: Wet ---	0.0-1.5: Dry 1.5-4.5: Moist 4.5-6.7: Wet	0.0-2.5: Dry 2.5-5.5: Moist 5.5-6.7: Wet	0.0-4.5: Moist 4.5-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-3.0: Moist 3.0-6.7: Wet ---	0.0-4.0: Moist 4.0-6.7: Wet ---
Bete Grise------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
196B:												
Bete Grise------	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
Tawas-----------	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---
301:												
Udorthents------	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-1.0: Dry 1.0-7.0: Moist	0.0-1.5: Dry 1.5-7.0: Moist	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---
Udipsamments----	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-2.0: Dry 2.0-7.0: Moist	0.0-3.0: Dry 3.0-7.0: Moist	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---

Table 18.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
302:												
Histosols	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet
Aquents	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet
303:												
Aquents	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet	0.0-7.0: Wet
Dumps, stamp sand	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
310. Dumps, mine												
311:												
Dumps, stamp sand	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.0: Moist 1.0-6.7: Wet ---	0.0-1.5: Moist 1.5-6.7: Wet ---
312. Pits												
313. Dumps, sawdust												
W. Water												

Table 19.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
2:										
Lupton	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Tawas	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
3:										
Dawson	A/D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Aug	0.5	>6.0	Apparent	---	---	None	---	None
		Sep	0.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
Loxley	A/D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Aug	0.5	>6.0	Apparent	---	---	None	---	None
		Sep	0.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
6:										
Skandia	D	Jan-Feb	0.0	2.6-2.6	Perched	---	---	None	---	None
		Mar	0.0	2.6-2.6	Perched	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	2.6-2.6	Perched	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	2.6-2.6	Perched	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	2.6-2.6	Perched	---	---	None	---	None
		Aug	1.0	2.6-2.6	Perched	---	---	None	---	None
		Sep	0.5	2.6-2.6	Perched	---	---	None	---	None
		Oct-Nov	0.0	2.6-2.6	Perched	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	2.6-2.6	Perched	---	---	None	---	None
Burt	D	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	>6.0	>6.0	---	---	Brief	Occasional	---	None
		Apr-May	>6.0	>6.0	---	---	Long	Frequent	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	>6.0	>6.0	---	---	Brief	Frequent	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
10:										
Cathro----------------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Sabattis--------------	B/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	---	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
13:										
Tawas-----------------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
Deford----------------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	---	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	.5-49.7	>6.0	Apparent	---	---	---	---	None
		Jul	1.5	>6.0	Apparent	---	---	---	---	None
		Aug	2.0	>6.0	Apparent	---	---	---	---	None
		Sep	1.0	>6.0	Apparent	---	---	---	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	---	---	None
15B:										
Dawson----------------	A/D	Jan-Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Aug	0.5	>6.0	Apparent	---	---	None	---	None
		Sep	0.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
Croswell--------------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
20E.										
Rock outcrop										
21G:										
Rock outcrop.										
Arcadian	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
39A:										
Betsy Bay	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
Burt	D	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	>6.0	>6.0	---	---	Brief	Occasional	---	None
		Apr-May	>6.0	>6.0	---	---	Long	Frequent	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Nov	>6.0	>6.0	---	---	Brief	Frequent	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Deford	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	---	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	.5-49.7	>6.0	Apparent	---	---	---	---	None
		Jul	1.5	>6.0	Apparent	---	---	---	---	None
		Aug	2.0	>6.0	Apparent	---	---	---	---	None
		Sep	1.0	>6.0	Apparent	---	---	---	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	---	---	None
47A:										
Zeba	B	Jan-Feb	2.0	2.8-2.8	Perched	---	---	None	---	None
		Mar	1.5	2.8-2.8	Perched	---	---	None	---	None
		Apr	1.0	2.8-2.8	Perched	---	---	None	---	None
		May	0.5	2.8-2.8	Perched	---	---	None	---	None
		Jun	2.0	2.8-2.8	Perched	---	---	None	---	None
		Jul	2.5	2.8-2.8	Perched	---	---	None	---	None
		Aug	>6.0	>6.0	---	---	---	None	---	None
		Sep	2.5	2.8-2.8	Perched	---	---	None	---	None
		Oct-Nov	1.0	2.8-2.8	Perched	---	---	None	---	None
		Dec	1.5	2.8-2.8	Perched	---	---	None	---	None
Jacobsville	D	Jan-Feb	0.0	3.0-3.0	Perched	---	---	None	---	None
		Mar	0.0	3.0-3.0	Perched	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	3.0-3.0	Perched	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	3.0-3.0	Perched	---	---	None	---	None
		Jul	1.0	3.0-3.0	Perched	---	---	None	---	None
		Aug	2.0	3.0-3.0	Perched	---	---	None	---	None
		Sep	1.5	3.0-3.0	Perched	---	---	None	---	None
		Oct-Nov	0.0	3.0-3.0	Perched	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	3.0-3.0	Perched	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
51C:										
Arcadian	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Nipissing	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Rock outcrop.										
51E:										
Arcadian	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Nipissing	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Rock outcrop.										
52C:										
Arcadian	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Dishno	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	2.0	3.8-3.8	Perched	---	---	None	---	None
		Apr	1.0	3.8-3.8	Perched	---	---	None	---	None
		May	1.5	3.8-3.8	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	1.0	3.8-3.8	Perched	---	---	None	---	None
		Nov	2.0	3.8-3.8	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Rock outcrop.										
52E:										
Arcadian	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Dishno	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	2.0	3.8-3.8	Perched	---	---	None	---	None
		Apr	1.0	3.8-3.8	Perched	---	---	None	---	None
		May	1.5	3.8-3.8	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	1.0	3.8-3.8	Perched	---	---	None	---	None
		Nov	2.0	3.8-3.8	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Rock outcrop.										
53E:										
Arcadian	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Michigamme	C	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Rock outcrop.										
53F:										
Arcadian	D	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Michigamme	C	Jan-Nov	>6.0	>6.0	---	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	---	---	None
Rock outcrop.										

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
55B:										
Chocolay--------------	A	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	2.0	2.3-2.3	Perched	---	---	None	---	None
		Apr	1.0	2.3-2.3	Perched	---	---	None	---	None
		May	1.5	2.3-2.3	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	1.0	2.3-2.3	Perched	---	---	None	---	None
		Nov	1.5	2.3-2.3	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
100B:										
Waiska----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
100D:										
Waiska----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
102C:										
Waiska----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Garlic----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
102E:										
Waiska----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Garlic----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
102F:										
Waiska----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Garlic----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
110B:										
Shelldrake------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Croswell--------------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
111B:										
Deer Park-------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
111D:										
Deer Park-------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
111E:										
Deer Park-------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
111F:										
Deer Park-------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
112C:										
Deer Park-------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
112C:										
Croswell	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
113C:										
Rubicon	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Croswell	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
120B:										
Garlic	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
120D:										
Garlic	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
120E:										
Garlic	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
125A:										
Croswell	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Au Gres	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
126B:										
Au Gres	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
Deford	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	---	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	.5-49.7	>6.0	Apparent	---	---	---	---	None
		Jul	1.5	>6.0	Apparent	---	---	---	---	None
		Aug	2.0	>6.0	Apparent	---	---	---	---	None
		Sep	1.0	>6.0	Apparent	---	---	---	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	---	---	None
Croswell	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
127A:										
Au Gres	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
Kinross	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	---	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
130C:										
Garlic	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Alcona	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
130E:										
Garlic----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Alcona----------------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
133C:										
Keweenaw--------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Garlic----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
133E:										
Keweenaw--------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Garlic----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
133F:										
Keweenaw--------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Garlic----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
136B:										
Borgstrom-------------	B	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Ingalls---------------	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
142C:										
Wallace---------------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Rubicon---------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
142F:										
Wallace---------------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Rubicon---------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
155C:										
Montreal--------------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
155C:										
Paavola	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.6-2.6	Perched	---	---	None	---	None
		Apr	1.0	2.6-2.6	Perched	---	---	None	---	None
		May	1.5	2.6-2.6	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	2.0	2.6-2.6	Perched	---	---	None	---	None
		Nov	1.5	2.6-2.6	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Waiska	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
155E:										
Montreal	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Paavola	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.6-2.6	Perched	---	---	None	---	None
		Apr	1.0	2.6-2.6	Perched	---	---	None	---	None
		May	1.5	2.6-2.6	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	2.0	2.6-2.6	Perched	---	---	None	---	None
		Nov	1.5	2.6-2.6	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Waiska	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
158A:										
Arnheim	D	Jan-Feb	0.0	>6.0	Apparent	---	---	---	---	---
		Mar-May	0.0	>6.0	Apparent	---	---	---	Long	Frequent
		Jun	0.5	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		Jul	1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		Aug	2.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		Sep	1.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	---
		Oct	0.5	>6.0	Apparent	0.0-0.5	Long	Frequent	---	---
		Nov	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	---
		Dec	0.0	>6.0	Apparent	---	---	---	---	---
Sturgeon	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	---
		Mar	1.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	0.5	>6.0	Apparent	---	---	None	Brief	Occasional
		Jun	1.0	>6.0	Apparent	---	---	None	---	---
		Jul	2.0	>6.0	Apparent	---	---	None	---	---
		Aug	3.0	>6.0	Apparent	---	---	None	---	---
		Sep	2.0	>6.0	Apparent	---	---	None	---	---
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	---
		Dec	1.5	>6.0	Apparent	---	---	None	---	---
Pelkie	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	---
		Mar	2.5	>6.0	Apparent	---	---	None	Brief	Occasional
		Apr-May	2.0	>6.0	Apparent	---	---	None	Brief	Occasional
		Jun	3.5	>6.0	Apparent	---	---	None	---	---
		Jul	4.5	>6.0	Apparent	---	---	None	---	---
		Aug	5.5	>6.0	Apparent	---	---	None	---	---
		Sep	4.5	>6.0	Apparent	---	---	None	---	---
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	---
		Dec	4.5	>6.0	Apparent	---	---	None	---	---

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
161F:										
Trimountain-----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Lac La Belle----------	C	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Waiska----------------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
162F:										
Trimountain-----------	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Lac La Belle----------	C	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Michigamme------------	C	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
166B:										
Gratiot---------------	C	Jan-Feb	5.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Mar	5.0	>6.0	Apparent					
		Apr-May	4.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	1.7-1.7	Perched					
		Jun	1.0	1.7-1.7	Perched	---	---	None	---	None
		Jun	4.5	>6.0	Apparent					
		Jul	5.5	>6.0	Apparent	---	---	None	---	None
		Aug-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	5.5	>6.0	Apparent	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Nov	5.5	>6.0	Apparent					
		Dec	5.5	>6.0	Apparent	---	---	None	---	None
Sabattis--------------	B/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	---	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
173C:										
Montreal--------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Paavola---------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.6-2.6	Perched	---	---	None	---	None
		Apr	1.0	2.6-2.6	Perched	---	---	None	---	None
		May	1.5	2.6-2.6	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	2.0	2.6-2.6	Perched	---	---	None	---	None
		Nov	1.5	2.6-2.6	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
173C:										
Dishno----------------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	2.0	3.8-3.8	Perched	---	---	None	---	None
		Apr	1.0	3.8-3.8	Perched	---	---	None	---	None
		May	1.5	3.8-3.8	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	1.0	3.8-3.8	Perched	---	---	None	---	None
		Nov	2.0	3.8-3.8	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
173E:										
Montreal--------------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Paavola---------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.6-2.6	Perched	---	---	None	---	None
		Apr	1.0	2.6-2.6	Perched	---	---	None	---	None
		May	1.5	2.6-2.6	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	2.0	2.6-2.6	Perched	---	---	None	---	None
		Nov	1.5	2.6-2.6	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Dishno----------------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	2.0	3.8-3.8	Perched	---	---	None	---	None
		Apr	1.0	3.8-3.8	Perched	---	---	None	---	None
		May	1.5	3.8-3.8	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	1.0	3.8-3.8	Perched	---	---	None	---	None
		Nov	2.0	3.8-3.8	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
174B:										
Montreal--------------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Dishno----------------	C	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	2.0	3.8-3.8	Perched	---	---	None	---	None
		Apr	1.0	3.8-3.8	Perched	---	---	None	---	None
		May	1.5	3.8-3.8	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	1.0	3.8-3.8	Perched	---	---	None	---	None
		Nov	2.0	3.8-3.8	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
174B:										
Gratiot	C	Jan-Feb	5.5	>6.0	Apparent	---	---	None	---	None
		Mar	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched					
		Apr-May	0.5	1.7-1.7	Perched	---	---	None	---	None
		Apr-May	4.5	>6.0	Apparent					
		Jun	1.0	1.7-1.7	Perched	---	---	None	---	None
		Apr-Jun	4.5	>6.0	Apparent					
		Jul	5.5	>6.0	Apparent	---	---	None	---	None
		Aug-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	5.5	>6.0	Apparent	---	---	None	---	None
		Nov	5.5	>6.0	Apparent	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched					
		Dec	5.5	>6.0	Apparent	---	---	None	---	None
177A:										
Assinins	B	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
183C:										
Munising	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Abbaye	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	2.0	2.7-2.7	Perched	---	---	None	---	None
		Apr	1.0	2.7-2.7	Perched	---	---	None	---	None
		May	2.0	2.7-2.7	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	1.0	2.7-2.7	Perched	---	---	None	---	None
		Nov	2.0	2.7-2.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Yalmer	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.0-2.0	Perched	---	---	None	---	None
		Apr	1.0	2.0-2.0	Perched	---	---	None	---	None
		May	1.5	2.0-2.0	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	2.0-2.0	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
183E:										
Munising	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
183E:										
Abbaye----------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	2.0	2.7-2.7	Perched	---	---	None	---	None
		Apr	1.0	2.7-2.7	Perched	---	---	None	---	None
		May	2.0	2.7-2.7	Perched	---	---	None	---	None
		Jun-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct	1.0	2.7-2.7	Perched	---	---	None	---	None
		Nov	2.0	2.7-2.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Yalmer----------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.0-2.0	Perched	---	---	None	---	None
		Apr	1.0	2.0-2.0	Perched	---	---	None	---	None
		May	1.5	2.0-2.0	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	2.0-2.0	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
184C:										
Munising--------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Yalmer----------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.0-2.0	Perched	---	---	None	---	None
		Apr	1.0	2.0-2.0	Perched	---	---	None	---	None
		May	1.5	2.0-2.0	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	2.0-2.0	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
184E:										
Munising--------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Yalmer----------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	2.0-2.0	Perched	---	---	None	---	None
		Apr	1.0	2.0-2.0	Perched	---	---	None	---	None
		May	1.5	2.0-2.0	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	2.0-2.0	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
185B:										
Munising--------------	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
185B:										
Skanee	C	Jan-Feb	5.5	>6.0	Apparent	---	---	None	---	None
		Mar	5.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	1.2-1.2	Perched	---	---	None	---	None
		Apr-May	4.5	>6.0	Apparent					
		Jun	1.0	1.2-1.2	Perched	---	---	None	---	None
		Apr-Jun	4.5	>6.0	Apparent					
		Jul	5.5	>6.0	Apparent	---	---	None	---	None
		Aug-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Dec	5.5	>6.0	Apparent	---	---	None	---	None
185C:										
Munising	B	Jan-Feb	>6.0	>6.0	---	---	---	None	---	None
		Mar	1.5	1.7-1.7	Perched	---	---	None	---	None
		Apr	1.0	1.7-1.7	Perched	---	---	None	---	None
		May	1.5	1.7-1.7	Perched	---	---	None	---	None
		Jun-Oct	>6.0	>6.0	---	---	---	None	---	None
		Nov	1.5	1.7-1.7	Perched	---	---	None	---	None
		Dec	>6.0	>6.0	---	---	---	None	---	None
Skanee	C	Jan-Feb	5.5	>6.0	Apparent	---	---	None	---	None
		Mar	5.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	1.2-1.2	Perched	---	---	None	---	None
		Apr-May	4.5	>6.0	Apparent					
		Jun	1.0	1.2-1.2	Perched	---	---	None	---	None
		Apr-Jun	4.5	>6.0	Apparent					
		Jul	5.5	>6.0	Apparent	---	---	None	---	None
		Aug-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Dec	5.5	>6.0	Apparent	---	---	None	---	None
187A:										
Skanee	C	Jan-Feb	5.5	>6.0	Apparent	---	---	None	---	None
		Mar	5.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	1.2-1.2	Perched	---	---	None	---	None
		Apr-May	4.5	>6.0	Apparent					
		Jun	1.0	1.2-1.2	Perched	---	---	None	---	None
		Apr-Jun	4.5	>6.0	Apparent					
		Jul	5.5	>6.0	Apparent	---	---	None	---	None
		Aug-Sep	>6.0	>6.0	---	---	---	None	---	None
		Oct-Dec	5.5	>6.0	Apparent	---	---	None	---	None
Gay	B/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.5-0.5	Brief	Occasional	---	None
		Apr-May	0.0	>6.0	Apparent	0.5-0.5	Long	Frequent	---	None
		Jun	0.5	>6.0	Apparent	---	---	None	---	None
		Jul	1.5	>6.0	Apparent	---	---	None	---	None
		Aug	2.0	>6.0	Apparent	---	---	None	---	None
		Sep	1.0	>6.0	Apparent	---	---	None	---	None
		Oct	0.0	>6.0	Apparent	---	Brief	Frequent	---	None
		Nov	0.0	>6.0	Apparent	0.5-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
192B:										
Nipissing	B	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Arcadian	D	Jan-Dec	>6.0	>6.0	---	---	---	---	---	None
Rock outcrop.										

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
194B:										
Copper Harbor---------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
195B:										
Copper Harbor---------	A	Jan-Feb	5.0	>6.0	Apparent	---	---	None	---	None
		Mar	2.5	>6.0	Apparent	---	---	None	---	None
		Apr-May	2.0	>6.0	Apparent	---	---	None	---	None
		Jun	3.5	>6.0	Apparent	---	---	None	---	None
		Jul	4.5	>6.0	Apparent	---	---	None	---	None
		Aug	5.5	>6.0	Apparent	---	---	None	---	None
		Sep	4.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	3.0	>6.0	Apparent	---	---	None	---	None
		Dec	4.0	>6.0	Apparent	---	---	None	---	None
Bete Grise------------	A	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
196B:										
Bete Grise------------	A	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
Tawas-----------------	A/D	Jan-Feb	0.0	>6.0	Apparent	---	---	None	---	None
		Mar	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Apr-May	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	---	None
		Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul	0.5	>6.0	Apparent	---	---	None	---	None
		Aug	1.0	>6.0	Apparent	---	---	None	---	None
		Sep	0.5	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Dec	0.0	>6.0	Apparent	---	---	None	---	None
301:										
Udorthents------------	---	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Udipsamments----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
302:										
Histosols-------------	D	Jan-Dec	0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
Aquents---------------	D	Jan-Dec	0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
303:										
Aquents---------------	D	Jan-Dec	0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	None
Dumps, stamp sand-----	A	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
310. Dumps, mine										
311:										
Dumps, stamp sand-----	A	Jan-Feb	1.5	>6.0	Apparent	---	---	None	---	None
		Mar	1.0	>6.0	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.0	Apparent	---	---	None	---	None
		Jun	1.0	>6.0	Apparent	---	---	None	---	None
		Jul	2.0	>6.0	Apparent	---	---	None	---	None
		Aug	3.0	>6.0	Apparent	---	---	None	---	None
		Sep	2.0	>6.0	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.5	>6.0	Apparent	---	---	None	---	None
312. Pits										
313. Dumps, sawdust										
W. Water										

Table 20.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
2:									
Lupton-----------------	---	---	---	---	6-18	50-55	High	High	Low
Tawas------------------	---	---	---	---	4-12	20-30	High	High	Moderate
3:									
Dawson-----------------	---	---	---	---	---	30-36	High	High	High
Loxley-----------------	---	---	---	---	6-18	50-55	High	High	High
6:									
Skandia----------------	Bedrock (lithic)	30-46	---	Indurated	4-12	20-24	High	High	Moderate
Burt-------------------	Bedrock (lithic)	12-20	---	Indurated	---	---	Moderate	High	Moderate
10:									
Cathro-----------------	---	---	---	---	4-12	19-22	High	Moderate	Moderate
Sabattis---------------	---	---	---	---	0-2	2-3	High	High	Moderate
13:									
Tawas------------------	---	---	---	---	4-12	20-30	High	High	Moderate
Deford-----------------	---	---	---	---	0-1	1-2	Moderate	Low	Moderate
15B:									
Dawson-----------------	---	---	---	---	---	30-36	High	High	High
Croswell---------------	---	---	---	---	---	---	Low	Low	Moderate
20E.									
Rock outcrop									
21G:									
Rock outcrop.									
Arcadian---------------	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil 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			
39A:									
Betsy Bay	Bedrock (lithic)	30-50	---	Indurated	---	---	Moderate	Low	Moderate
Burt	Bedrock (lithic)	12-20	---	Indurated	---	---	Moderate	High	Moderate
Deford	---	---	---	---	0-1	1-2	Moderate	Low	Moderate
47A:									
Zeba	Bedrock (lithic)	26-36	---	Indurated	---	---	High	Moderate	Moderate
Jacobsville	Bedrock (lithic)	20-36	---	Indurated	0-1	1-2	High	High	High
51C:									
Arcadian	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate
Nipissing	Bedrock (lithic)	20-40	---	Indurated	---	---	Moderate	Low	Moderate
Rock outcrop.									
51E:									
Arcadian	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate
Nipissing	Bedrock (lithic)	20-40	---	Indurated	---	---	Moderate	Low	Moderate
Rock outcrop.									
52C:									
Arcadian	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate
Dishno	Bedrock (lithic)	40-60	---	Indurated	---	---	Moderate	Moderate	High
Rock outcrop.									
52E:									
Arcadian	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate
Dishno	Bedrock (lithic)	40-60	---	Indurated	---	---	Moderate	Moderate	High
Rock outcrop.									
53E:									
Arcadian	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate
Michigamme	Bedrock (lithic)	22-40	---	Indurated	---	---	Moderate	Low	High
Rock outcrop.									

Table 20.--Soil Features--Continued

Map symbol and soil 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			
53F:									
Arcadian	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate
Michigamme	Bedrock (lithic)	20-40	---	Indurated	---	---	Moderate	Low	High
Rock outcrop.									
55B:									
Chocolay	Bedrock (lithic)	20-40	---	Indurated	---	---	Moderate	Moderate	Moderate
100B:									
Waiska	---	---	---	---	---	---	Low	Low	Moderate
100D:									
Waiska	---	---	---	---	---	---	Low	Low	Moderate
102C:									
Waiska	---	---	---	---	---	---	Low	Low	Moderate
Garlic	---	---	---	---	---	---	Low	Low	High
102E:									
Waiska	---	---	---	---	---	---	Low	Low	Moderate
Garlic	---	---	---	---	---	---	Low	Low	High
102F:									
Waiska	---	---	---	---	---	---	Low	Low	Moderate
Garlic	---	---	---	---	---	---	Low	Low	High
110B:									
Shelldrake	---	---	---	---	---	---	Low	Low	High
Croswell	---	---	---	---	---	---	Low	Low	Moderate
111B:									
Deer Park	---	---	---	---	---	---	Low	Low	Low
111D:									
Deer Park	---	---	---	---	---	---	Low	Low	Low
111E:									
Deer Park	---	---	---	---	---	---	Low	Low	Low

Table 20.--Soil Features--Continued

Map symbol and soil 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			
111F:									
Deer Park	---	---	---	---	---	---	Low	Low	Low
112C:									
Deer Park	---	---	---	---	---	---	Low	Low	Low
Croswell	---	---	---	---	---	---	Low	Low	Moderate
113C:									
Rubicon	---	---	---	---	---	---	Low	Low	High
Croswell	---	---	---	---	---	---	Low	Low	Moderate
120B:									
Garlic	---	---	---	---	---	---	Low	Low	High
120D:									
Garlic	---	---	---	---	---	---	Low	Low	High
120E:									
Garlic	---	---	---	---	---	---	Low	Low	High
125A:									
Croswell	---	---	---	---	---	---	Low	Low	Moderate
Au Gres	---	---	---	---	---	---	Moderate	Low	Moderate
126B:									
Au Gres	---	---	---	---	---	---	Moderate	Low	Moderate
Deford	---	---	---	---	0-1	1-2	Moderate	Low	Moderate
Croswell	---	---	---	---	---	---	Low	Low	Moderate
127A:									
Au Gres	---	---	---	---	---	---	Moderate	Low	Moderate
Kinross	---	---	---	---	0-2	1-4	Moderate	High	Moderate
130C:									
Garlic	---	---	---	---	---	---	Low	Low	High
Alcona	---	---	---	---	---	---	Moderate	Low	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
130E:									
Garlic-----------------	---	---	---	---	---	---	Low	Low	High
Alcona-----------------	---	---	---	---	---	---	Moderate	Low	Low
133C:									
Keweenaw---------------	---	---	---	---	---	---	Low	Low	Moderate
Garlic-----------------	---	---	---	---	---	---	Low	Low	High
133E:									
Keweenaw---------------	---	---	---	---	---	---	Low	Low	Moderate
Garlic-----------------	---	---	---	---	---	---	Low	Low	High
133F:									
Keweenaw---------------	---	---	---	---	---	---	Low	Low	Moderate
Garlic-----------------	---	---	---	---	---	---	Low	Low	High
136B:									
Borgstrom--------------	Ortstein	8-18	2-30	Very strongly cemented	---	---	Low	Low	Moderate
Ingalls----------------	---	---	---	---	---	---	Moderate	Moderate	Moderate
142C:									
Wallace----------------	Ortstein	18-25	14-32	Very strongly cemented	---	---	Low	Low	High
Rubicon----------------	---	---	---	---	---	---	Low	Low	High
142F:									
Wallace----------------	Ortstein	18-25	14-32	Very strongly cemented	---	---	Low	Low	High
Rubicon----------------	---	---	---	---	---	---	Low	Low	High
155C:									
Montreal---------------	Fragipan	14-41	6-37	Strongly cemented	---	---	Moderate	Moderate	High
Paavola----------------	Bedrock (lithic)	20-30	3-26	Strongly cemented	---	---	Low	Moderate	Moderate
Waiska-----------------	---	---	---	---	---	---	Low	Low	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
155E:									
Montreal	Fragipan	14-41	6-37	Strongly cemented	---	---	Moderate	Moderate	High
Paavola	Fragipan	20-30	3-26	Strongly cemented	---	---	Low	Moderate	Moderate
Waiska	---	---	---	---	---	---	Low	Low	Moderate
158A:									
Arnheim	---	---	---	---	0-0	0-1	High	High	Moderate
Sturgeon	---	---	---	---	---	---	High	Moderate	Moderate
Pelkie	---	---	---	---	---	---	Low	Low	Moderate
161F:									
Trimountain	Fragipan	16-28	10-35	Strongly cemented	---	---	Moderate	Moderate	High
Lac La Belle	Fragipan	25-40	3-45	Strongly cemented	---	---	Low	Moderate	Moderate
Waiska	---	---	---	---	---	---	Low	Low	Moderate
162F:									
Trimountain	Fragipan	16-28	10-35	Strongly cemented	---	---	Moderate	Moderate	High
Lac La Belle	Fragipan	25-40	3-45	Strongly cemented	---	---	Low	Moderate	Moderate
Michigamme	Bedrock (lithic)	22-40	---	Indurated	---	---	Moderate	Low	High
166B:									
Gratiot	Fragipan	15-20	5-15	Strongly cemented	---	---	High	Moderate	Moderate
Sabattis	---	---	---	---	0-2	2-3	High	High	Moderate
173C:									
Montreal	Fragipan	14-41	6-37	Strongly cemented	---	---	Moderate	Moderate	High
Paavola	Fragipan	20-30	3-26	Strongly cemented	---	---	Low	Moderate	Moderate
Dishno	Bedrock (lithic)	40-60	---	Indurated	---	---	Moderate	Moderate	High
173E:									
Montreal	Fragipan	14-41	6-37	Strongly cemented	---	---	Moderate	Moderate	High
Paavola	Bedrock (lithic)	20-30	3-26	Indurated	---	---	Low	Moderate	Moderate
Dishno	Bedrock (lithic)	40-60	---	Indurated	---	---	Moderate	Moderate	High

Table 20.--Soil Features--Continued

Map symbol and soil 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			
174B:									
Montreal	Fragipan	14-41	6-37	Strongly cemented	---	---	Moderate	Moderate	High
Dishno	Bedrock (lithic)	40-60	---	Indurated	---	---	Moderate	Moderate	High
Gratiot	Fragipan	15-20	5-15	Strongly cemented	---	---	High	Moderate	Moderate
177A:									
Assinins	---	---	---	---	---	---	High	Moderate	Moderate
183C:									
Munising	Fragipan	15-22	6-16	Strongly cemented	---	---	Moderate	Low	High
Abbaye	Bedrock (lithic)	20-40	---	Indurated	---	---	Moderate	Low	Moderate
Yalmer	Fragipan	20-30	2-32	Strongly cemented	---	---	Low	Low	Moderate
183E:									
Munising	Fragipan	15-22	6-16	Strongly cemented	---	---	Moderate	Low	High
Abbaye	Bedrock (lithic)	20-40	---	Indurated	---	---	Moderate	Low	Moderate
Yalmer	Fragipan	20-30	2-32	Strongly cemented	---	---	Low	Low	Moderate
184C:									
Munising	Fragipan	15-22	6-16	Strongly cemented	---	---	Moderate	Low	High
Yalmer	Fragipan	20-30	2-32	Strongly cemented	---	---	Low	Low	Moderate
184E:									
Munising	Fragipan	15-22	6-16	Strongly cemented	---	---	Moderate	Low	High
Yalmer	Fragipan	20-30	2-32	Strongly cemented	---	---	Low	Low	Moderate
185B:									
Munising	Fragipan	15-22	6-16	Strongly cemented	---	---	Moderate	Low	High
Skanee	Fragipan	12-18	17-26	Strongly cemented	---	---	High	Moderate	High
185C:									
Munising	Fragipan	15-22	6-16	Strongly cemented	---	---	Moderate	Low	High
Skanee	Fragipan	12-18	17-26	Strongly cemented	---	---	High	Moderate	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
187A:									
Skanee-----------------	Fragipan	12-18	17-26	Strongly cemented	---	---	High	Moderate	High
Gay--------------------	---	---	---	---	0-1	0-1	High	High	Moderate
192B:									
Nipissing--------------	Bedrock (lithic)	20-40	---	Indurated	---	---	Moderate	Low	Moderate
Arcadian---------------	Bedrock (lithic)	10-20	---	Indurated	---	---	Moderate	Low	Moderate
Rock outcrop.									
194B:									
Copper Harbor----------	---	---	---	---	---	---	Low	Low	Moderate
195B:									
Copper Harbor----------	---	---	---	---	---	---	Low	Low	Moderate
Bete Grise-------------	---	---	---	---	---	---	Low	Low	Moderate
196B:									
Bete Grise-------------	---	---	---	---	---	---	Low	Low	Moderate
Tawas------------------	---	---	---	---	4-12	20-30	High	High	Moderate
301:									
Udorthents-------------	---	---	---	---	---	---	Low	Moderate	Low
Udipsamments-----------	---	---	---	---	---	---	Low	Low	Moderate
302:									
Histosols--------------	---	---	---	---	6-18	50-55	High	High	Moderate
Aquents----------------	---	---	---	---	---	---	High	---	---
303:									
Aquents----------------	---	---	---	---	---	---	High	---	---
Dumps, stamp sand------	---	---	---	---	---	---	Low	Low	Low
310.									
Dumps, mine									
311:									
Dumps, stamp sand------	---	---	---	---	---	---	Low	Low	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
312. Pits									
313. Dumps, sawdust									
W. Water									

Table 21.--Classification of the Soils

Soil name	Family or higher taxonomic class
Abbaye	Coarse-loamy, mixed, active, frigid Alfic Oxyaquic Haplorthods
Alcona	Coarse-loamy, mixed, active, frigid Alfic Haplorthods
Arcadian	Loamy-skeletal, mixed, active, frigid Lithic Haplorthods
Arnheim	Coarse-loamy, mixed, superactive, nonacid, frigid Typic Fluvaquents
Assinins	Coarse-loamy, mixed, active, frigid Argic Endoaquods
Au Gres	Sandy, mixed, frigid Typic Endoaquods
Bete Grise	Sandy-skeletal, mixed, frigid Typic Endoaquods
Betsy Bay	Mixed, frigid Typic Psammaquents
Borgstrom	Sandy, mixed, frigid, shallow, ortstein Typic Durorthods
Burt	Siliceous, frigid Lithic Psammaquents
Cathro	Loamy, mixed, euic, frigid Terric Haplosaprists
Chocolay	Loamy-skeletal, mixed, superactive, frigid Oxyaquic Haplorthods
Copper Harbor	Sandy-skeletal, isotic, frigid Oxyaquic Haplorthods
Croswell	Sandy, mixed, frigid Oxyaquic Haplorthods
Dawson	Sandy or sandy-skeletal, mixed, dysic, frigid Terric Haplosaprists
Deer Park	Mixed, frigid Spodic Udipsamments
Deford	Mixed, frigid Typic Psammaquents
Dishno	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Oxyaquic Haplorthods
Garlic	Sandy, mixed, frigid, ortstein Typic Haplorthods
Gay	Coarse-loamy, mixed, active, nonacid, frigid Aeric Endoaquepts
Gratiot	Loamy-skeletal, mixed, superactive, frigid Typic Fragiaquods
Ingalls	Sandy over loamy, mixed, active, frigid Typic Endoaquods
Jacobsville	Coarse-loamy, mixed, active, nonacid, frigid Aeric Endoaquepts
Keweenaw	Sandy, mixed, frigid Alfic Haplorthods
Kinross	Sandy, mixed, frigid Typic Endoaquods
Lac La Belle	Sandy-skeletal, isotic, frigid Typic Fragiorthods
Loxley	Dysic, frigid Typic Haplosaprists
Lupton	Euic, frigid Typic Haplosaprists
Michigamme	Coarse-loamy, mixed, superactive, frigid Fragic Haplorthods
Montreal	Coarse-loamy, isotic, superactive, frigid Alfic Oxyaquic Fragiorthods
Munising	Coarse-loamy, mixed, active, frigid Alfic Oxyaquic Fragiorthods
Nipissing	Loamy-skeletal, mixed, active, frigid Typic Haplorthods
Paavola	Sandy-skeletal, mixed, frigid Alfic Oxyaquic Fragiorthods
Pelkie	Mixed, frigid Oxyaquic Udipsamments
Rubicon	Sandy, mixed, frigid Entic Haplorthods
Sabattis	Coarse-loamy, mixed, active, nonacid, frigid Histic Humaquepts
Shelldrake	Frigid, uncoated Typic Quartzipsamments
Skandia	Dysic, frigid Lithic Haplosaprists
Skanee	Coarse-loamy, mixed, active, frigid Argic Fragiaquods
Sturgeon	Coarse-silty over sandy or sandy-skeletal, mixed, superactive, nonacid, frigid Aquic Udifluvents
Tawas	Sandy or sandy-skeletal, mixed, euic, frigid Terric Haplosaprists
Trimountain	Coarse-loamy, mixed, superactive, frigid Ultic Fragiorthods
Waiska	Sandy-skeletal, mixed, frigid Typic Haplorthods
Wallace	Sandy, mixed, frigid, shallow, ortstein Typic Durorthods
Yalmer	Sandy, mixed, frigid Alfic Oxyaquic Fragiorthods
Zeba	Coarse-loamy, mixed, active, frigid Argic Endoaquods

Interpretive Groups

Interpretive Groups

(Unless otherwise indicated, a complex is treated as a single management unit in the land capability classification column. See text for definitions of the groups. Absence of an entry indicates that the map unit is not suited to the intended use or that an interpretive group is not assigned)

Map symbol and soil name	Land capability classification	Michigan soil management group	Hydric status	Habitat type (primary/ secondary)
2	6w			
Lupton		Mc	Hydric	TTM/TTS
Tawas		M/4c	Hydric	TTM/TTS
3	7w			
Dawson		Mc-a	Hydric	PCS/TTS
Loxley		M/4c-a	Hydric	PCS/TTS
6	7w			
Skandia		M/Rc	Hydric	PCS/TTS
Burt		Rbc	Hydric	PCS/TTS
10	6w			
Cathro		M/3c	Hydric	TTM/FI
Sabattis		3c	Hydric	TTM/FI
13	6w			
Tawas		M/4c	Hydric	TTM/TTS
Deford		4c	Hydric	TTS/TTM
15B	7w			
Dawson		M/4c-a	Hydric	PCS/TMC-V
Croswell		5a	Not hydric	AQV/TMC-V
20E. Rock outcrop				
21G	---			
Rock outcrop.				
Arcadian		Ra	Not hydric	TMC-V/AQV
39A	3w			
Betsy Bay		4/Rbc	Not hydric	TMC-V/TTS
Burt		Rbc	Hydric	TTS/TTM
47A	3w			
Zeba		3/Rbc	Not hydric	TMC-D/TMC
Jacobsville		3/Rbc	Hydric	TTM/TMC-V
51C	7s			
Arcadian		Ra	Not hydric	TMV/ATD
Nipissing		G/Ra	Not hydric	ATD/TMV
Rock outcrop.				
51E	7s			
Arcadian		Ra	Not hydric	TMV/TM
Nipissing		G/Ra	Not hydric	TMV/TM
Rock outcrop.				
52C	7s			
Arcadian		Ra	Not hydric	AVO/ATD
Dishno		3a	Not hydric	ATD/AVO
Rock outcrop.				

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Michigan soil management group	Hydric status	Habitat type (primary/ secondary)
52E----------------------	7s			
Arcadian----------------		Ra	Not hydric	AVO/ATD
Dishno------------------		3a	Not hydric	AVO/ATD
Rock outcrop.				
53E----------------------	7s			
Arcadian----------------		Ra	Not hydric	ATD/TMV
Michigamme--------------		3/Ra	Not hydric	ATD/TMV
Rock outcrop.				
53F----------------------	7s			
Arcadian----------------		Ra	Not hydric	ATD/TMV
Michigamme--------------		3/Ra	Not hydric	ATD/TMV
Rock outcrop.				
55B---------------------- Chocolay	6s	3/Ra	Not hydric	ATD
100B--------------------- Waiska	6s	Ga	Not hydric	ATD
100D--------------------- Waiska	6s	Ga	Not hydric	ATD
102C---------------------	6s			
Waiska------------------		Ga	Not hydric	ATD/AVO
Garlic------------------		5.3a	Not hydric	ATD
102E---------------------	7s			
Waiska------------------		Ga	Not hydric	ATD/AVO
Garlic------------------		5.3a	Not hydric	ATD
102F---------------------	7s			
Waiska------------------		Ga	Not hydric	ATD/AVO
Garlic------------------		5.3a	Not hydric	ATD
110B---------------------	6s			
Shelldrake--------------		5.3a	Not hydric	PVC
Croswell----------------		5a	Not hydric	QAE
111B--------------------- Deer Park	6s	5.3a	Not hydric	AQV/QAE
111D--------------------- Deer Park	7s	5.3a	Not hydric	AQV/QAE
111E--------------------- Deer Park	7s	5.3a	Not hydric	AQV/QAE
111F--------------------- Deer Park	7s	5.3a	Not hydric	AQV/QAE
112C---------------------	7s			
Deer Park---------------		5.3a	Not hydric	QAE
Croswell----------------		5a	Not hydric	QAE/TMC-V
113C---------------------	7s			
Rubicon-----------------		5.3a	Not hydric	AQV/TMV
Croswell----------------		5a	Not hydric	AQV/TMC-V
120B--------------------- Garlic	4s	5.3a	Not hydric	TM/ATD-D

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Michigan soil management group	Hydric status	Habitat type (primary/ secondary)
120D--------------------- Garlic	6s	5.3a	Not hydric	TM/ATD-D
120E--------------------- Garlic	7s	5.3a	Not hydric	TM/ATD-D
125A---------------------	4s			
Croswell----------------		5a	Not hydric	AQV
Au Gres-----------------		5b	Not hydric	TMC-V
126B---------------------	4w			
Au Gres-----------------		5b	Not hydric	TMC-V
Deford------------------		4c	Hydric	TMC-V/AQV
Croswell----------------		5a	Not hydric	TMC-V/AQV
127A---------------------	4w			
Au Gres-----------------		5b	Not hydric	TMC-V
Kinross-----------------		5c-a	Hydric	PCS/TTS
130C---------------------	6s			
Garlic------------------		5.3a	Not hydric	ATD-D
Alcona------------------		3a-s	Not hydric	ATD
130E---------------------	7s			
Garlic------------------		5.3a	Not hydric	ATD-D
Alcona------------------		3a-s	Not hydric	ATD
133C---------------------	3e			
Keweenaw----------------		4a-a	Not hydric	ATD-D/TM
Garlic------------------		5.3a	Not hydric	TM/ATD-D
133E---------------------	7e			
Keweenaw----------------		4a-a	Not hydric	ATD-D/TM
Garlic------------------		5.3a	Not hydric	ATD-D/TM
133F---------------------	7e			
Keweenaw----------------		4a-a	Not hydric	ATD-D/TM
Garlic------------------		5.3a	Not hydric	ATD
136B---------------------	6s			
Borgstrom---------------		4/2a-hs	Not hydric	TM
Ingalls-----------------		4/2b	Not hydric	TMC
142C---------------------	6s			
Wallace-----------------		5a-h	Not hydric	TMV
Rubicon-----------------		5.3a	Not hydric	AQV/TMV
142F---------------------	7s			
Wallace-----------------		5a-h	Not hydric	TMV
Rubicon-----------------		5.3a	Not hydric	AQV/TMV
155C---------------------	6s			
Montreal----------------		3a-af	Not hydric	ATD/AVO
Paavola-----------------		Ga	Not hydric	AVO/ATD
Waiska------------------		Ga	Not hydric	ATD/AVO
155E---------------------	7e			
Montreal----------------		3a-af	Not hydric	ATD/AVO
Paavola-----------------		Ga	Not hydric	AVO/ATD
Waiska------------------		Ga	Not hydric	ATD/AVO

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Michigan soil management group	Hydric status	Habitat type (primary/ secondary)
158A	5w			
Arnheim		L-2c	Hydric	FMC/FI
Sturgeon		L-2b	Not hydric	AVO-CI
Pelkie		L-2a	Not hydric	AVO
161F	7e			
Trimountain		3a-af	Not hydric	AVO/ATD
Lac La Belle		Ga	Not hydric	ATD/AVO
Waiska		Ga	Not hydric	AVO/ATD
162F	7e			
Trimountain		3a-af	Not hydric	ATD/AVO
Lac La Belle		Ga	Not hydric	ATD/AVO
Michigamme		3/Ra	Not hydric	ATD/AVO
166B	7s			
Gratiot		3b-af	Not hydric	AVO-CI/TMC-D
Sabattis		3c	Hydric	FI/TTM
173C	6s			
Montreal		3a-af	Not hydric	AVO/ATD
Paavola		Ga	Not hydric	AVO/ATD
Dishno		3a	Not hydric	AVO/ATD
173E	7e			
Montreal		3a-af	Not hydric	AVO/ATD
Paavola		Ga	Not hydric	AVO/ATD
Dishno		3a	Not hydric	AVO/ATD
174B	6s			
Montreal		3a-af	Not hydric	ATD/AVO
Dishno		3a	Not hydric	ATD/AVO
Gratiot		3b-af	Not hydric	AVO-CI/ATD-CI
177A	3w	4b	Not hydric	TMC
Assinins				
183C	6e			
Munising		3a-af	Not hydric	TM/ATD
Abbaye		3/Ra	Not hydric	ATD
Yalmer		4a-a	Not hydric	TM/ATD
183E	7e			
Munising		3a-af	Not hydric	TM/ATD
Abbaye		3/Ra	Not hydric	ATD
Yalmer		4a-a	Not hydric	ATD/TM
184C	7e			
Munising		3a-af	Not hydric	TM/ATD
Yalmer		4a-a	Not hydric	ATD/TM
184E	7e			
Munising		3a-af	Not hydric	ATD/TM
Yalmer		4a-a	Not hydric	ATD/TM
185B	6s			
Munising		3a-af	Not hydric	ATD/TM
Skanee		3b-a	Not hydric	TMC/TMC-D
185C	6s			
Munising		3a-af	Not hydric	ATD/TM
Skanee		3b-a	Not hydric	TMC/TMC-D

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Michigan soil management group	Hydric status	Habitat type (primary/ secondary)
187A	2e			
Skanee		3b-a	Not hydric	TMC/TMC-D
Gay		3c	Hydric	TTS
192B	7s			
Nipissing		G/Ra	Not hydric	TMV/AQV
Arcadian		Ra	Not hydric	TMV/AQV
Rock outcrop.				
194B	6s	Ga	Not hydric	ATD
Copper Harbor				
195B	6s			
Copper Harbor		Ga	Not hydric	ATD
Bete Grise		Gbc	Not hydric	TMC-D
196B	4w			
Bete Grise		M/4c	Not hydric	TMC-D
Tawas		Gbc	Hydric	TTM
301	6e			
Udorthents		---	---	---
Udipsamments		---	---	---
302	7w			
Histosols		---	---	---
Aquents		---	---	---
303	8s			
Aquents		---	Hydric	---
Dumps, stamp sand		---	Not hydric	---
310	8s	---	---	---
Dumps, mine				
311	7s	---	Not hydric	---
Dumps, stamp sand				
312.				
Pits				
313.				
Dumps, sawdust				
W.				
Water				

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