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Department of  
Agriculture



NRCS

Natural  
Resources  
Conservation  
Service

In cooperation with  
Minnesota Agricultural  
Experiment Station and  
Board of Water and Soil  
Resources

# Soil Survey of Swift County, Minnesota



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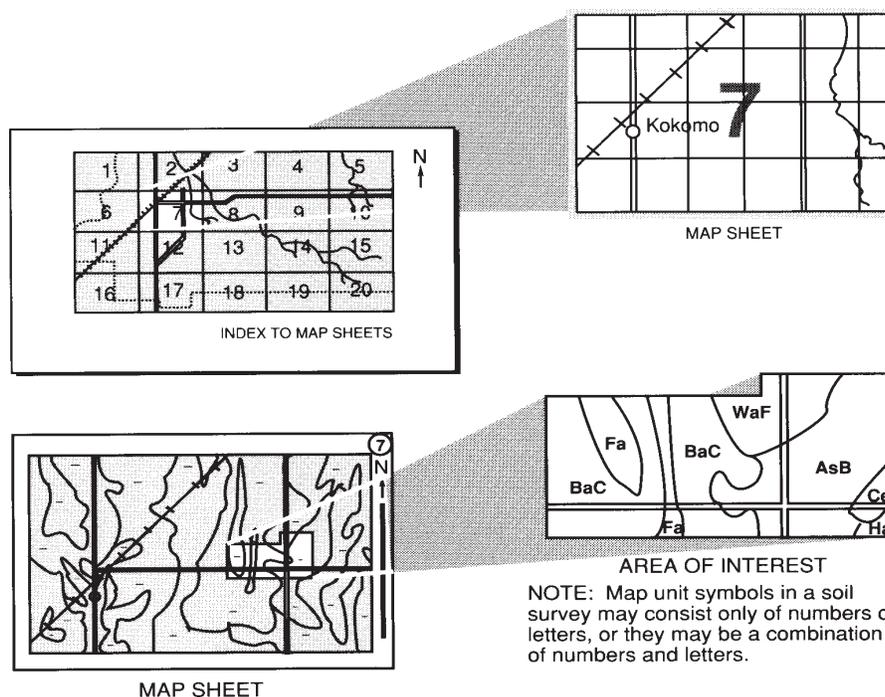
# How To Use This Soil Survey

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

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet, and click on 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 map unit symbols and names also appear as bookmarks, which link directly to the appropriate page in the publication.

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



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

Major fieldwork for this soil survey was completed in 1999. Soil names and descriptions were approved in 2000. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1999. This survey was made cooperatively by the Natural Resources Conservation Service, the Minnesota Agricultural Experiment Station, and the Board of Water and Soil Resources. It is part of the technical assistance furnished to the Swift County Soil and Water Conservation District. Financial assistance was provided by Swift County.

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

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**Cover: Irrigated soybeans in an area of Renshaw loam, 0 to 3 percent slopes, near Appleton. Irrigators are a distinctive part of the landscape in Swift County.**

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

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# Foreword

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

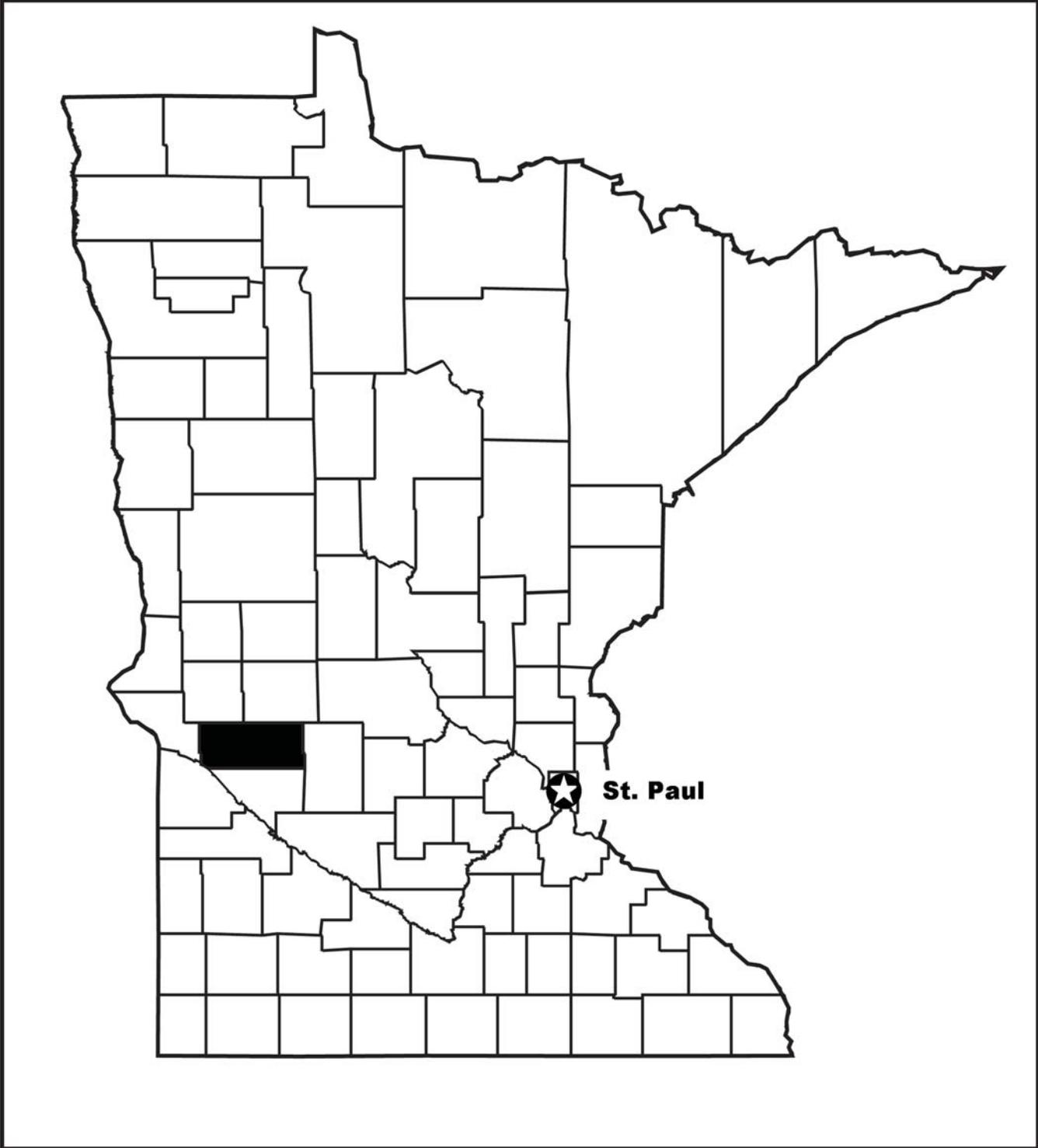
This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey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

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

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

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

William Hunt  
State Conservationist  
Natural Resources Conservation Service



Location of Swift County in Minnesota

# Soil Survey of Swift County, Minnesota

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By Joe Kristoff, Natural Resources Conservation Service

Fieldwork by Joe Kristoff, Ray Genrich, and Trudy Pink, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the Minnesota Agricultural Experiment Station and the Board of Water and Soil Resources

## How This Survey Was Made

This survey was made to provide updated information about the soils and miscellaneous areas in the survey area, which is in Region 10 and is mostly in Major Land Resource Area 102A. Region 10 is an administrative division of the Natural Resources Conservation Service. Major land resource areas (MLRAs) are geographically associated land resource units that share a common land use, elevation and topography, climate, water, soils, and vegetation (USDA, 1981). The Swift County survey area is a subset of MLRA 102A. Map unit design and the soil descriptions are based on the occurrence of each soil throughout the MLRA. In some cases a soil may be referred to that was not mapped in the Swift County subset but that is representative of the MLRA.

This survey updates the previous survey published for this area (Diedrick, 1973). The current survey provides additional information and modern interpretations.

The information includes a description of the soils and miscellaneous areas and their location and a discussion of their properties and the subsequent effects on suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots

and other living organisms and has not been changed by other biological activity.

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

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

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, soil reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil

scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

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

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

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

# Classification of the Soils

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

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

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

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Endoaquolls (*Endo*, meaning within, plus *aquoll*, the suborder of the Mollisols that has an aquic moisture regime).

**SUBGROUP.** Each great group has a typic subgroup. Other subgroups are intergrades or

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

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, 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 Endoaquolls.

**SERIES.** The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series. The soils of the Fossum series are sandy, mixed, frigid Typic Endoaquolls.

The Official Soil Series Descriptions (OSDs) provide the most current information about the series mapped in Swift County. These descriptions are available on the Web at <http://soils.usda.gov>.

Table 1.--Classification of the Soils

Soil name	Family or higher taxonomic class
Arveson-----	Coarse-loamy, mixed, superactive, frigid Typic Calciaquolls
Arvilla-----	Sandy, mixed, frigid Calcic Hapludolls
Audubon-----	Fine, smectitic, frigid Aquic Hapluderts
Balaton-----	Fine-loamy, mixed, superactive, frigid Aquic Calcicudolls
Barnes-----	Fine-loamy, mixed, superactive, frigid Calcic Hapludolls
Bearden-----	Fine-silty, mixed, superactive, frigid Aeric Calciaquolls
Bigstone-----	Fine-silty, mixed, superactive, calcareous, frigid Cumulic Endoaquolls
Buse-----	Fine-loamy, mixed, superactive, frigid Typic Calcicudolls
Byrne-----	Fine-loamy, mixed, superactive, frigid Calcic Hapludolls
Cathro-----	Loamy, mixed, euic, frigid Terric Haplosaprists
Clontarf-----	Coarse-loamy, mixed, superactive, frigid Aquic Hapludolls
Colvin-----	Fine-silty, mixed, superactive, frigid Typic Calciaquolls
Cosmos-----	Fine, smectitic, mesic Vertic Epiquolls
Darnen-----	Fine-loamy, mixed, superactive, frigid Cumulic Hapludolls
Eckman-----	Coarse-silty, mixed, superactive, frigid Calcic Hapludolls
Egeland-----	Coarse-loamy, mixed, superactive, frigid Calcic Hapludolls
Emrick-----	Coarse-loamy, mixed, superactive, frigid Pachic Hapludolls
Esmond-----	Coarse-loamy, mixed, superactive, frigid Typic Calcicudolls
Estelline-----	Fine-silty over sandy or sandy-skeletal, mixed, superactive, frigid Pachic Hapludolls
Everts-----	Fine-loamy, mixed, superactive, frigid Cumulic Hapludolls
Fordtown-----	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Pachic Hapludolls
Fordville-----	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Calcic Hapludolls
Fossum-----	Sandy, mixed, frigid Typic Endoaquolls
Foxlake-----	Fine, smectitic, frigid Vertic Epiquolls
Friberg-----	Fine-loamy, mixed, superactive, frigid Typic Argiaquolls
Fulda-----	Fine, smectitic, frigid Vertic Epiquolls
Hamar-----	Sandy, mixed, frigid Typic Endoaquolls
Hantho-----	Coarse-silty, mixed, superactive, frigid Aquic Hapludolls
Hattie-----	Fine, smectitic, frigid Aquic Hapluderts
Hecla-----	Sandy, mixed, frigid Oxyaquic Hapludolls
Heimdal-----	Coarse-loamy, mixed, superactive, frigid Calcic Hapludolls
Hokans-----	Fine-loamy, mixed, superactive, frigid Calcic Hapludolls
Kandiyohi-----	Fine, smectitic, mesic Aquertic Hapludolls
Kerkhoven-----	Fine-loamy, mixed, superactive, frigid Cumulic Endoaquolls
Langhei-----	Fine-loamy, mixed, superactive, frigid Typic Eutrudepts
La Prairie-----	Fine-loamy, mixed, superactive, frigid Cumulic Hapludolls
Lakepark-----	Fine-loamy, mixed, superactive, frigid Cumulic Endoaquolls
Lamoure-----	Fine-silty, mixed, superactive, calcareous, frigid Cumulic Endoaquolls
Lamachy-----	Coarse-loamy, mixed, superactive, frigid Aquic Calcicudolls
Marysland-----	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Typic Calciaquolls
McDonaldsville-----	Clayey over sandy or sandy-skeletal, smectitic over mixed, frigid Vertic Endoaquolls
McIntosh-----	Fine-silty, mixed, superactive, frigid Aeric Calciaquolls
Okoboji-----	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
Oldham-----	Fine, smectitic, calcareous, frigid Cumulic Vertic Epiquolls
Ortonville-----	Coarse-loamy, mixed, superactive, frigid Aquic Calcicudolls
Parnell-----	Fine, smectitic, frigid Vertic Argiaquolls
Quam-----	Fine-silty, mixed, superactive, frigid Cumulic Endoaquolls
Rauville-----	Fine-silty, mixed, superactive, calcareous, frigid Cumulic Endoaquolls
Renshaw-----	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Calcic Hapludolls
Rockwell-----	Coarse-loamy, mixed, superactive, frigid Typic Calciaquolls
Rondell-----	Fine-silty, mixed, superactive, frigid Aquic Calcicudolls
Sandberg-----	Sandy, mixed, frigid Calcic Hapludolls
Sedgeville-----	Coarse-loamy, mixed, superactive, frigid Fluvaquentic Endoaquolls
Shakopee-----	Clayey over sandy or sandy-skeletal, smectitic over mixed, frigid Typic Calciaquolls
Sinai-----	Fine, smectitic, frigid Typic Hapluderts
Sioux-----	Sandy-skeletal, mixed, frigid Entic Hapludolls
Sisseton-----	Coarse-loamy, mixed, superactive, frigid Typic Eutrudepts
Spottswood-----	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Aquic Hapludolls
Svea-----	Fine-loamy, mixed, superactive, frigid Pachic Hapludolls
Sverdrup-----	Sandy, mixed, frigid Typic Hapludolls
Swenoda-----	Coarse-loamy, mixed, superactive, frigid Pachic Hapludolls
Tara-----	Fine-silty, mixed, superactive, frigid Aquic Hapludolls
Torning-----	Coarse-loamy, mixed, superactive, frigid Typic Calcicudolls
Urness-----	Fine-silty, mixed, superactive, calcareous, frigid Mollic Fluvaquents
Vallers-----	Fine-loamy, mixed, superactive, frigid Typic Calciaquolls

Table 1.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Winger-----	Fine-silty, mixed, superactive, frigid Typic Calciaquolls
Zell-----	Coarse-silty, mixed, superactive, frigid Typic Calciudolls



# Soil Map Unit Descriptions

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In this section, arranged in numerical order, are the soil map unit descriptions for the soil series mapped in Swift County.

Characteristics of the soil and the material in which it formed are identified for each soil series. A brief description of the soil profile is provided in the map unit descriptions. For more information about a soil series, the official series description can be viewed or downloaded from the Web. The detailed descriptions follow standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998).

The map units on the soil maps in this survey represent the soils or miscellaneous areas in the survey area. These soils or miscellaneous areas are listed as individual components in the map unit descriptions. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is provided in the tables (see Contents).

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

Components that are dissimilar, or contrasting, are identified in the map unit description. Dissimilar components are those that have properties and behavioral characteristics divergent enough from those of the major components to affect use or to require different management. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps.

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

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

An identifying symbol is used for each map unit on the soil maps. This symbol precedes the map unit name in the map unit descriptions. Each description includes general information about the unit. The map unit descriptions include representative values in feet and the months in which a wet zone (a zone in which the soil moisture status is wet) is highest and lowest in the soil profile and ponding is shallowest and deepest on the soil surface. The descriptions also include the frequency of flooding (if it occurs) and the months in which flooding is most frequent and least frequent. Tables 17, 18, and 19 provide a complete display of this data for every month of the year. The available water capacity given in each map unit description is calculated for all horizons in the upper 60 inches of the soil profile. The organic matter content displayed in each map unit description is calculated for all horizons in the upper 10 inches of the soil profile. Table 15 provides a complete display of available water capacity and organic matter content by horizon.

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

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

Soils of one series can differ in texture of the surface layer or of the underlying layers. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. The name of a soil phase

commonly indicates a feature that affects use or management. For example, Marysland loam, 0 to 2 percent slopes, is a phase of the Marysland series.

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

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

A *complex* consists of two or more components in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. Attempting to delineate the individual components of a complex would result in excessive clutter that could make the map illegible. The pattern and proportion of the components in a complex are somewhat similar in all areas. Esmond-Heimdal complex, 2 to 6 percent slopes, 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. Quam, Cathro, and Urness soils, ponded, 0 to 1 percent slopes, is an undifferentiated group in this survey area.

This survey includes miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. The Pits component of Pits, gravel-Udipsamments complex is an example.

Table 2 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.

## **GP—Pits, gravel-Udipsamments complex**

### ***Component Description***

#### **Pits, gravel**

*Extent:* 80 percent of the unit

*General description:* Gravel pits are areas that have been mined for gravel or sand. The areas are actively being mined or are abandoned pits. Because of the variability of this component,

interpretations for specific uses are not available. Onsite investigation is needed.

#### **Udipsamments**

*Extent:* 20 percent of the unit

*General description:* Udipsamments are areas of soil that support plant growth. They are mapped as areas of the pits that have been reclaimed or abandoned. Because of the variability of this component, interpretations for specific uses are not available. Onsite investigation is needed.

## **J1A—Parnell silty clay loam, depressional, 0 to 1 percent slopes**

### ***Component Description***

#### **Parnell, depressional, and similar soils**

*Extent:* 85 to 95 percent of the unit

*Geomorphic setting:* Depressions on lake plains, till plains, and moraines

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 2 feet (February, August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 10.4 inches

*Content of organic matter in the upper 10 inches:* 8 percent

*Typical profile:*

A1,A2—0 to 22 inches; silty clay loam

Btg—22 to 55 inches; silty clay

BCg—55 to 80 inches; silty clay loam

#### **Colvin soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Drainageways on lake plains; flats on lake plains; rims of depressions on lake plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silty clay loam  
 Bk—10 to 25 inches; silt loam  
 Cg—25 to 80 inches; stratified silt loam to silty clay loam

#### **Vallers soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Drainageways on till plains; rims of depressions on till plains; flats on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap,A—0 to 14 inches; clay loam  
 Bkg—14 to 38 inches; loam  
 Cg—38 to 80 inches; loam

#### **Major Uses of the Map Unit**

- Cropland

### **J2A—La Prairie loam, 0 to 2 percent slopes, occasionally flooded**

#### **Component Description**

#### **La Prairie and similar soils**

*Extent:* 80 to 95 percent of the unit  
*Geomorphic setting:* Flats on flood plains  
*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Alluvium  
*Months in which flooding does not occur:* January, February, September, October, November, December  
*Highest frequency of flooding:* Occasional (March, April, May, June, July, August)  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.9 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap—0 to 9 inches; loam  
 A—9 to 38 inches; loam  
 Bw—38 to 50 inches; loam  
 C—50 to 60 inches; loam

#### **Lamoure soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats on flood plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Alluvium  
*Months in which flooding does not occur:* January, February, September, October, November, December  
*Highest frequency of flooding:* Occasional (March, April, May, June, July, August)  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.9 inches  
*Content of organic matter in the upper 10 inches:* 6 percent  
*Typical profile:*  
 A1,A2—0 to 27 inches; silty clay loam  
 Cg1—27 to 34 inches; silty clay loam  
 Cg2—34 to 60 inches; silt loam

#### **Major Uses of the Map Unit**

- Cropland

### **J3A—Arveson sandy loam, 0 to 2 percent slopes**

#### ***Component Description***

#### **Arveson and similar soils**

*Extent:* 70 to 90 percent of the unit  
*Geomorphic setting:* Rims of depressions on outwash plains; drainageways on outwash plains; flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* More than 60 inches  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 7.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; sandy loam  
 Ak—10 to 22 inches; sandy loam  
 Bkg—22 to 35 inches; sandy loam  
 2Cg—35 to 80 inches; sand

#### **Marysland soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Drainageways on outwash plains; flats on outwash plains; rims of depressions on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* More than 60 inches  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap—0 to 9 inches; loam  
 Ak—9 to 12 inches; loam  
 Bkg—12 to 27 inches; loam  
 2Cg—27 to 80 inches; sand

#### **Marysland soils in depressions**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Depressions on outwash plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 1.8 feet (August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 6.3 inches  
*Content of organic matter in the upper 10 inches:* 8 percent  
*Typical profile:*  
 Ap,Ak—0 to 19 inches; loam  
 Bkg—19 to 23 inches; sandy loam  
 2Cg—23 to 80 inches; sand

#### **Malachy soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Knolls on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* 3.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.2 inches  
*Content of organic matter in the upper 10 inches:* 4.5 percent  
*Typical profile:*  
 Ap,A—0 to 17 inches; sandy loam  
 Bk—17 to 28 inches; sandy loam  
 2C—28 to 80 inches; loamy sand

#### ***Major Uses of the Map Unit***

- Cropland

## **J4A—Rockwell loam, 0 to 2 percent slopes**

### ***Component Description***

#### **Rockwell and similar soils**

*Extent:* 80 to 95 percent of the unit

*Geomorphic setting:* Flats on outwash plains; drainageways on outwash plains; rims of depressions on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Outwash over lacustrine deposits; outwash over till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.1 inches

*Content of organic matter in the upper 10 inches:* 5.6 percent

*Typical profile:*

Ap—0 to 9 inches; loam

Ak—9 to 16 inches; loam

Bg—16 to 25 inches; sandy loam

2Cg—25 to 45 inches; stratified silt loam to silty clay loam

3Cg—45 to 80 inches; clay loam

#### **Arveson soils**

*Extent:* 0 to 15 percent of the unit

*Geomorphic setting:* Rims of depressions on outwash plains; drainageways on outwash plains; flats on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 7.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap—0 to 10 inches; sandy loam

Ak—10 to 22 inches; sandy loam

Bkg—22 to 35 inches; sandy loam

2Cg—35 to 80 inches; sand

### ***Major Uses of the Map Unit***

- Cropland

## **J5A—Fossum sandy loam, 0 to 2 percent slopes**

### ***Component Description***

#### **Fossum and similar soils**

*Extent:* 75 to 95 percent of the unit

*Geomorphic setting:* Drainageways on outwash plains; rims of depressions on outwash plains; flats on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 5.3 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap,A1—0 to 13 inches; sandy loam

A2—13 to 21 inches; sand

Cg—21 to 80 inches; fine sand

#### **Arveson soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Rims of depressions on outwash plains; drainageways on outwash plains; flats on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 7.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap—0 to 10 inches; sandy loam  
Ak—10 to 22 inches; sandy loam  
Bkg—22 to 35 inches; sandy loam  
2Cg—35 to 80 inches; sand

**Fossum soils in depressions**

*Extent:* 1 to 5 percent of the unit

*Geomorphic setting:* Depressions on outwash plains

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 1.8 feet (August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 4.9 inches

*Content of organic matter in the upper 10 inches:* 4 percent

*Typical profile:*

Ap—0 to 8 inches; sandy loam  
A—8 to 14 inches; sand  
Cg—14 to 80 inches; fine sand

**Hecla soils**

*Extent:* 0 to 5 percent of the unit

*Geomorphic setting:* Flats and swales on outwash plains

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Loamy fine sand

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* 3.9 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 5.1 inches

*Content of organic matter in the upper 10 inches:* 1.4 percent

*Typical profile:*

Ap—0 to 9 inches; loamy fine sand  
C—9 to 80 inches; fine sand

**Major Uses of the Map Unit**

- Cropland

**J6A—McDonaldsville silty clay, 0 to 2 percent slopes**

**Component Description**

**McDonaldsville and similar soils**

*Extent:* 80 to 95 percent of the unit

*Geomorphic setting:* Flats and drainageways on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Lacustrine deposits over outwash

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 8.5 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 17 inches; silty clay  
Bw,BC—17 to 36 inches; silty clay  
2C—36 to 80 inches; sand

**Somewhat poorly drained soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Flats on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained

*Parent material:* Lacustrine deposits over outwash

*Flooding:* None

*Shallowest depth to wet zone:* 1.5 feet (April)

*Deepest depth to wet zone:* 5.9 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.2 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 32 inches; silty clay  
 Bw,BC—32 to 46 inches; silty clay  
 2C—46 to 80 inches; sand

**Major Uses of the Map Unit**

- Cropland

**J7A—Sverdrup sandy loam, 0 to 2 percent slopes****Component Description****Sverdrup and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 4.6 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 12 inches; sandy loam  
 Bw—12 to 26 inches; sandy loam  
 2C—26 to 80 inches; sand

**Arveson soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Flats on outwash plains; drainageways on outwash plains; rims of depressions on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 7.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap—0 to 10 inches; sandy loam  
 Ak—10 to 22 inches; sandy loam  
 Bkg—22 to 35 inches; sandy loam  
 2Cg—35 to 80 inches; sand

**Clontarf soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Flats and swales on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.3 feet (April)  
*Deepest depth to wet zone:* 3 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; sandy loam  
 Bw—15 to 25 inches; sandy loam  
 2C—25 to 80 inches; sand

**Egeland soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.4 inches  
*Content of organic matter in the upper 10 inches:* 2.6 percent  
*Typical profile:*  
 Ap—0 to 8 inches; sandy loam  
 Bw1,Bw2—8 to 30 inches; sandy loam  
 Bw3—30 to 35 inches; loamy sand  
 Bk—35 to 48 inches; loamy fine sand  
 C—48 to 80 inches; loamy fine sand

**Major Uses of the Map Unit**

- Cropland

## **J7B—Sverdrup sandy loam, 2 to 6 percent slopes**

### **Component Description**

#### **Sverdrup and similar soils**

*Extent:* 85 to 95 percent of the unit  
*Geomorphic setting:* Hills on outwash plains  
*Position on the landform:* Summits, shoulders, and backslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 4.6 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 12 inches; sandy loam  
 Bw—12 to 26 inches; sandy loam  
 2C—26 to 80 inches; sand

#### **Clontarf soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Flats and swales on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.3 feet (April)  
*Deepest depth to wet zone:* 3 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; sandy loam  
 Bw—15 to 25 inches; sandy loam  
 2C—25 to 80 inches; sand

#### **Egeland soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Backslopes and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.4 inches  
*Content of organic matter in the upper 10 inches:* 2.6 percent  
*Typical profile:*  
 Ap—0 to 8 inches; sandy loam  
 Bw1,Bw2—8 to 30 inches; sandy loam  
 Bw3—30 to 35 inches; loamy sand  
 Bk—35 to 48 inches; loamy fine sand  
 C—48 to 80 inches; loamy fine sand

### **Major Uses of the Map Unit**

- Cropland

## **J8A—Egeland sandy loam, 0 to 2 percent slopes**

### **Component Description**

#### **Egeland and similar soils**

*Extent:* 70 to 90 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 7.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; sandy loam  
 Bw—15 to 40 inches; sandy loam  
 Bk—40 to 60 inches; sandy loam  
 C—60 to 80 inches; loamy sand

#### **Clontarf soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Flats and swales on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.3 feet (April)  
*Deepest depth to wet zone:* 3 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; sandy loam  
 Bw—15 to 25 inches; sandy loam  
 2C—25 to 80 inches; sand

#### **Sverdrup soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 4.6 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 12 inches; sandy loam  
 Bw—12 to 26 inches; sandy loam  
 2C—26 to 80 inches; sand

#### **Arveson soils**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Drainageways on outwash plains; flats on outwash plains; rims of depressions on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 7.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; sandy loam  
 Ak—10 to 22 inches; sandy loam  
 Bkg—22 to 35 inches; sandy loam  
 2Cg—35 to 80 inches; sand

#### **Hantho soils**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April)  
*Deepest depth to wet zone:* 5.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 12.3 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap,A—0 to 12 inches; silt loam  
 Bw—12 to 24 inches; silt loam  
 Bk,Bkg—24 to 65 inches; silt loam  
 Cg—65 to 80 inches; silt loam

#### **Major Uses of the Map Unit**

- Cropland

#### **J8B—Egeland sandy loam, 2 to 6 percent slopes**

##### **Component Description**

##### **Egeland and similar soils**

*Extent:* 70 to 90 percent of the unit  
*Geomorphic setting:* Hills on outwash plains  
*Position on the landform:* Backslopes, shoulders, and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 6.3 inches

*Content of organic matter in the upper 10 inches:* 2.9 percent

*Typical profile:*

Ap,A—0 to 9 inches; sandy loam

Bw—9 to 26 inches; sandy loam

Bk—26 to 39 inches; loamy sand

C—39 to 80 inches; loamy sand

### **Clontarf soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Flats and swales on outwash plains

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 1.3 feet (April)

*Deepest depth to wet zone:* 3 feet (August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 6.5 inches

*Content of organic matter in the upper 10 inches:* 3 percent

*Typical profile:*

Ap,A—0 to 15 inches; sandy loam

Bw—15 to 25 inches; sandy loam

2C—25 to 80 inches; sand

### **Sverdrup soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Shoulders

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 4.6 inches

*Content of organic matter in the upper 10 inches:* 3 percent

*Typical profile:*

Ap,A—0 to 12 inches; sandy loam

Bw—12 to 26 inches; sandy loam

2C—26 to 80 inches; sand

### **Torning soils**

*Extent:* 0 to 5 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Shoulders

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Fine sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.2 inches

*Content of organic matter in the upper 10 inches:* 1.2 percent

*Typical profile:*

Ap—0 to 8 inches; fine sandy loam

Bk—8 to 30 inches; fine sandy loam

C—30 to 80 inches; fine sand

### **Eckman soils**

*Extent:* 0 to 5 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Backslopes, shoulders, and summits

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 12.7 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap,A—0 to 13 inches; silt loam

Bw—13 to 22 inches; silt loam

Bk—22 to 30 inches; silt loam

BC,C—30 to 80 inches; silt loam

**Egeland soils that are eroded**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Hills on outwash plains  
*Position on the landform:* Shoulders  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.1 inches  
*Content of organic matter in the upper 10 inches:* 1.8 percent  
*Typical profile:*  
 Ap,A—0 to 7 inches; sandy loam  
 Bw—7 to 20 inches; sandy loam  
 Bk—20 to 39 inches; loamy sand  
 C—39 to 80 inches; loamy sand

**Major Uses of the Map Unit**

- Cropland

**J9A—Estelline silt loam, 0 to 2 percent slopes****Component Description****Estelline and similar soils**

*Extent:* 85 to 95 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Lacustrine deposits over outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 8.4 inches  
*Content of organic matter in the upper 10 inches:* 4.4 percent  
*Typical profile:*  
 Ap—0 to 6 inches; silt loam  
 Bw—6 to 27 inches; silty clay loam  
 Bk—27 to 37 inches; silt loam  
 2C—37 to 60 inches; gravelly sand

**Soils that have a thin surface layer**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Lacustrine deposits over outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.8 inches  
*Content of organic matter in the upper 10 inches:* 6 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silt loam  
 Bw—10 to 15 inches; silty clay loam  
 Bk—15 to 26 inches; silt loam  
 2C—26 to 80 inches; gravelly sand

**Major Uses of the Map Unit**

- Cropland

**J10A—Sinai silty clay, 0 to 2 percent slopes****Component Description****Sinai and similar soils**

*Extent:* 80 to 95 percent of the unit  
*Geomorphic setting:* Flats on moraines  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April, May)  
*Deepest depth to wet zone:* 5.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap,A—0 to 12 inches; silty clay  
 Bss—12 to 23 inches; silty clay  
 Bkss—23 to 42 inches; silty clay  
 C—42 to 60 inches; silty clay

**Fulda soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats and drainageways on moraines  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap,A—0 to 13 inches; silty clay  
 Bg—13 to 33 inches; silty clay  
 Bkg—33 to 40 inches; silty clay  
 Cg—40 to 60 inches; silty clay

**Major Uses of the Map Unit**

- Cropland

**J10B—Sinai silty clay, 2 to 6 percent slopes****Component Description****Sinai and similar soils**

*Extent:* 85 to 95 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Backslopes, shoulders, and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April, May)  
*Deepest depth to wet zone:* 5.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap,A—0 to 12 inches; silty clay

Bss—12 to 23 inches; silty clay  
 Bkss—23 to 42 inches; silty clay  
 C—42 to 60 inches; silty clay

**Fulda soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats and drainageways on moraines  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap,A—0 to 13 inches; silty clay  
 Bg—13 to 33 inches; silty clay  
 Bkg—33 to 40 inches; silty clay  
 Cg—40 to 60 inches; silty clay

**Major Uses of the Map Unit**

- Cropland

**J11A—Vallers clay loam, 0 to 2 percent slopes****Component Description****Vallers and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Rims of depressions on till plains; drainageways on till plains; flats on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 14 inches; clay loam  
 Bkg—14 to 38 inches; loam  
 Cg—38 to 80 inches; loam

**Parnell soils in depressions**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Depressions on till plains

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 2 feet (February, August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 10.4 inches

*Content of organic matter in the upper 10 inches:* 8 percent

*Typical profile:*

A1,A2—0 to 22 inches; silty clay loam  
 Btg—22 to 55 inches; silty clay  
 BCg—55 to 80 inches; silty clay loam

**Balaton soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Knolls on till plains

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.7 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 13 inches; loam  
 ABk,Bk—13 to 31 inches; loam  
 C—31 to 80 inches; loam

**Major Uses of the Map Unit**

- Cropland

**J12A—Marysland loam, 0 to 2 percent slopes****Component Description****Marysland and similar soils**

*Extent:* 75 to 95 percent of the unit

*Geomorphic setting:* Drainageways on outwash plains; rims of depressions on outwash plains; flats on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 6.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap—0 to 9 inches; loam  
 Ak—9 to 12 inches; loam  
 Bkg—12 to 27 inches; loam  
 2Cg—27 to 80 inches; sand

**Arveson soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Flats on outwash plains; rims of depressions on outwash plains; drainageways on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 7.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap—0 to 10 inches; sandy loam  
 Ak—10 to 22 inches; sandy loam  
 Bkg—22 to 35 inches; sandy loam  
 2Cg—35 to 80 inches; sand

**Marysland soils in depressions**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Depressions on outwash plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 1.8 feet (August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 6.3 inches  
*Content of organic matter in the upper 10 inches:* 8 percent  
*Typical profile:*  
 Ap,Ak—0 to 19 inches; loam  
 Bkg—19 to 23 inches; sandy loam  
 2Cg—23 to 80 inches; sand

**Malachy soils**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Knolls on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* 3.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.2 inches  
*Content of organic matter in the upper 10 inches:* 4.5 percent  
*Typical profile:*  
 Ap,A—0 to 17 inches; sandy loam  
 Bk—17 to 28 inches; sandy loam  
 2C—28 to 80 inches; loamy sand

**Major Uses of the Map Unit**

- Cropland

**J13A—Oldham silty clay loam, depressional, 0 to 1 percent slopes****Component Description****Oldham and similar soils**

*Extent:* 85 to 95 percent of the unit  
*Geomorphic setting:* Depressions on moraines, till plains, and lake plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 9.9 inches  
*Content of organic matter in the upper 10 inches:* 5.5 percent  
*Typical profile:*  
 Ap,A—0 to 28 inches; silty clay loam  
 Cg—28 to 80 inches; silty clay loam

**Colvin soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Drainageways on lake plains; rims of depressions on lake plains; flats on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5 inches

*Content of organic matter in the upper 10 inches:* 5 percent

*Typical profile:*

Ap—0 to 10 inches; silty clay loam

Bk—10 to 25 inches; silt loam

Cg—25 to 80 inches; stratified silt loam to silty clay loam

#### **Vallers soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Rims of depressions on till plains; flats on till plains; drainageways on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 14 inches; clay loam

Bkg—14 to 38 inches; loam

Cg—38 to 80 inches; loam

#### **Major Uses of the Map Unit**

- Cropland

### **J14F—Esmond loam, 18 to 40 percent slopes**

#### **Component Description**

##### **Esmond and similar soils**

*Extent:* 75 to 95 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Backslopes, shoulders, and summits

*Slope range:* 18 to 40 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.4 inches

*Content of organic matter in the upper 10 inches:* 2 percent

*Typical profile:*

A—0 to 8 inches; loam

Bk—8 to 27 inches; stratified sandy loam to loam to silt loam

C—27 to 80 inches; stratified sandy loam to loam to silt loam

#### **Emrick soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Flats and swales on moraines

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.3 inches

*Content of organic matter in the upper 10 inches:* 5.5 percent

*Typical profile:*

Ap,A—0 to 15 inches; loam

Bw—15 to 25 inches; loam

Bk—25 to 36 inches; stratified sandy loam to loam to silt loam

C—36 to 80 inches; stratified sandy loam to loam to silt loam

#### **Heimdal soils**

*Extent:* 5 to 10 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Backslopes

*Slope range:* 12 to 18 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.5 inches

*Content of organic matter in the upper 10 inches:* 3.8 percent

*Typical profile:*

- Ap—0 to 8 inches; loam
- Bw—8 to 12 inches; loam
- Bk—12 to 40 inches; stratified sandy loam to loam to silt loam
- C—40 to 80 inches; stratified sandy loam to loam to silt loam

**Major Uses of the Map Unit**

- Pasture and wildlife habitat

**J15B—Eckman silt loam, 2 to 6 percent slopes****Component Description****Eckman and similar soils**

- Extent:* 70 to 90 percent of the unit
- Geomorphic setting:* Hills on lake plains
- Position on the landform:* Summits, shoulders, and backslopes
- Slope range:* 2 to 6 percent
- Texture of the surface layer:* Silt loam
- Depth to restrictive feature:* Very deep (more than 60 inches)
- Drainage class:* Well drained
- Parent material:* Lacustrine deposits
- Flooding:* None
- Depth to wet zone:* More than 6.7 feet all year
- Ponding:* None
- Available water capacity to a depth of 60 inches:* 12.7 inches
- Content of organic matter in the upper 10 inches:* 4.5 percent
- Typical profile:*
  - Ap,A—0 to 13 inches; silt loam
  - Bw—13 to 22 inches; silt loam
  - Bk—22 to 30 inches; silt loam
  - BC,C—30 to 80 inches; silt loam

**Eckman soils that are eroded**

- Extent:* 0 to 10 percent of the unit
- Geomorphic setting:* Hills on lake plains
- Position on the landform:* Shoulders
- Slope range:* 2 to 6 percent
- Texture of the surface layer:* Silt loam
- Depth to restrictive feature:* Very deep (more than 60 inches)
- Drainage class:* Well drained
- Parent material:* Lacustrine deposits
- Flooding:* None
- Depth to wet zone:* More than 6.7 feet all year
- Ponding:* None

*Available water capacity to a depth of 60 inches:* 12.7 inches

*Content of organic matter in the upper 10 inches:* 3.5 percent

*Typical profile:*

- Ap,A—0 to 13 inches; silt loam
- Bw—13 to 22 inches; silt loam
- Bk—22 to 30 inches; silt loam
- BC,C—30 to 80 inches; silt loam

**Egeland soils**

- Extent:* 0 to 10 percent of the unit
- Geomorphic setting:* Hills on lake plains
- Position on the landform:* Shoulders, backslopes, and summits
- Slope range:* 2 to 6 percent
- Texture of the surface layer:* Sandy loam
- Depth to restrictive feature:* Very deep (more than 60 inches)
- Drainage class:* Well drained
- Parent material:* Outwash
- Flooding:* None
- Depth to wet zone:* More than 6.7 feet all year
- Ponding:* None
- Available water capacity to a depth of 60 inches:* 6.3 inches
- Content of organic matter in the upper 10 inches:* 2.9 percent
- Typical profile:*
  - Ap,A—0 to 9 inches; sandy loam
  - Bw—9 to 26 inches; sandy loam
  - Bk—26 to 39 inches; loamy sand
  - C—39 to 80 inches; loamy sand

**Hantho soils**

- Extent:* 1 to 10 percent of the unit
- Geomorphic setting:* Flats and swales on lake plains
- Slope range:* 1 to 3 percent
- Texture of the surface layer:* Silt loam
- Depth to restrictive feature:* Very deep (more than 60 inches)
- Drainage class:* Somewhat poorly drained
- Parent material:* Lacustrine deposits
- Flooding:* None
- Shallowest depth to wet zone:* 1.5 feet (April)
- Deepest depth to wet zone:* 5.9 feet (February, August)
- Ponding:* None
- Available water capacity to a depth of 60 inches:* 12.3 inches
- Content of organic matter in the upper 10 inches:* 5 percent
- Typical profile:*
  - Ap,A—0 to 12 inches; silt loam

Bw—12 to 24 inches; silt loam  
 Bk,Bkg—24 to 65 inches; silt loam  
 Cg—65 to 80 inches; silt loam

### **Zell soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Hills on lake plains  
*Position on the landform:* Shoulders  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.1 inches  
*Content of organic matter in the upper 10 inches:* 2.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silt loam  
 Bk—10 to 43 inches; silt loam  
 C—43 to 80 inches; silt loam

### **Major Uses of the Map Unit**

- Cropland

## **J16A—Friberg silt loam, depressional, 0 to 2 percent slopes**

### **Component Description**

#### **Friberg, depressional, and similar soils**

*Extent:* 85 to 95 percent of the unit  
*Geomorphic setting:* Depressions on moraines  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 11.3 inches

*Content of organic matter in the upper 10 inches:* 7.5 percent

#### *Typical profile:*

Ap,A—0 to 23 inches; silt loam  
 Btg—23 to 47 inches; silty clay loam  
 Bkg—47 to 60 inches; loam  
 Cg—60 to 80 inches; loam

### **Kerkhoven soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats and drainageways on moraines  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.2 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; loam  
 A—10 to 35 inches; loam  
 Bg—35 to 53 inches; loam  
 Bkg—53 to 63 inches; loam  
 Cg—63 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J17A—Quam silty clay loam, depressional, 0 to 1 percent slopes**

### **Component Description**

#### **Quam, depressional, and similar soils**

*Extent:* 85 to 95 percent of the unit  
*Geomorphic setting:* Depressions on moraines, lake plains, and till plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 10.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silty clay loam  
 A1,A2—10 to 45 inches; silty clay loam  
 Cg—45 to 80 inches; silty clay loam

### **Colvin soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Drainageways on lake plains; flats on lake plains; rims of depressions on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silty clay loam  
 Bk—10 to 25 inches; silt loam  
 Cg—25 to 80 inches; stratified silt loam to silty clay loam

### **Vallers soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Rims of depressions on till plains; drainageways on till plains; flats on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap,A—0 to 14 inches; clay loam  
 Bkg—14 to 38 inches; loam  
 Cg—38 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J18A—Malachy sandy loam, 1 to 3 percent slopes**

### **Component Description**

#### **Malachy and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Knolls on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* 3.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.2 inches  
*Content of organic matter in the upper 10 inches:* 4.5 percent  
*Typical profile:*  
 Ap,A—0 to 17 inches; sandy loam  
 Bk—17 to 28 inches; sandy loam  
 2C—28 to 80 inches; loamy sand

#### **Arveson soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Rims of depressions on outwash plains; flats on outwash plains; drainageways on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 7.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; sandy loam  
 Ak—10 to 22 inches; sandy loam  
 Bkg—22 to 35 inches; sandy loam  
 2Cg—35 to 80 inches; sand

#### **Well drained soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Knolls on outwash plains  
*Slope range:* 2 to 4 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (January, February July, August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 14 inches; sandy loam  
 Bw—14 to 28 inches; sandy loam  
 C—28 to 80 inches; loamy sand

#### **Clontarf soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.3 feet (April)  
*Deepest depth to wet zone:* 3 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; sandy loam

Bw—15 to 25 inches; sandy loam  
 2C—25 to 80 inches; sand

#### **Major Uses of the Map Unit**

- Cropland

### **J19A—Hecla loamy fine sand, 1 to 3 percent slopes**

#### **Component Description**

##### **Hecla and similar soils**

*Extent:* 70 to 90 percent of the unit  
*Geomorphic setting:* Flats and swales on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loamy fine sand  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* 3.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 5.1 inches  
*Content of organic matter in the upper 10 inches:* 1.4 percent  
*Typical profile:*  
 Ap—0 to 9 inches; loamy fine sand  
 C—9 to 80 inches; fine sand

##### **Clontarf soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.3 feet (April)  
*Deepest depth to wet zone:* 3 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; sandy loam

Bw—15 to 25 inches; sandy loam  
2C—25 to 80 inches; sand

### **Sverdrup soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 4.6 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
Ap,A—0 to 12 inches; sandy loam  
Bw—12 to 26 inches; sandy loam  
2C—26 to 80 inches; sand

### **Hamar soils**

*Extent:* 1 to 5 percent of the unit  
*Geomorphic setting:* Drainageways and flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Loamy fine sand  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 5 inches  
*Content of organic matter in the upper 10 inches:* 2 percent  
*Typical profile:*  
Ap,A—0 to 20 inches; loamy fine sand  
Cg—20 to 80 inches; loamy fine sand

### **Malachy soils**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Knolls on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* 3.9 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 6.2 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap,A—0 to 17 inches; sandy loam

Bk—17 to 28 inches; sandy loam

2C—28 to 80 inches; loamy sand

### **Major Uses of the Map Unit**

- Cropland

## **J20A—Clontarf sandy loam, 1 to 3 percent slopes**

### **Component Description**

#### **Clontarf and similar soils**

*Extent:* 70 to 90 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.3 feet (April)  
*Deepest depth to wet zone:* 3 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.8 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
Ap,A—0 to 15 inches; sandy loam  
Bw—15 to 25 inches; sandy loam  
2C—25 to 80 inches; sand

#### **Hecla soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats and swales on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loamy fine sand  
*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* 3.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 5.1 inches  
*Content of organic matter in the upper 10 inches:* 1.4 percent  
*Typical profile:*  
 Ap—0 to 9 inches; loamy fine sand  
 C—9 to 80 inches; fine sand

#### **Arveson soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Rims of depressions on outwash plains; flats on outwash plains; drainageways on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 7.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; sandy loam  
 Ak—10 to 22 inches; sandy loam  
 Bkg—22 to 35 inches; sandy loam  
 2Cg—35 to 80 inches; sand

#### **Well drained soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Knolls on outwash plains  
*Slope range:* 1 to 4 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)  
*Ponding:* None

*Available water capacity to a depth of 60 inches:* 6.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 14 inches; sandy loam  
 Bw—14 to 28 inches; sandy loam  
 C—28 to 80 inches; loamy sand

#### **Major Uses of the Map Unit**

- Cropland

### **J21A—Hamar loamy fine sand, 0 to 2 percent slopes**

#### **Component Description**

##### **Hamar and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Drainageways and flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Loamy fine sand  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 5 inches  
*Content of organic matter in the upper 10 inches:* 2 percent  
*Typical profile:*  
 Ap,A—0 to 20 inches; loamy fine sand  
 Cg—20 to 80 inches; loamy fine sand

##### **Soils that are less sandy than the Hamar soil**

*Extent:* 5 to 10 percent of the unit  
*Geomorphic setting:* Flats and drainageways on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.6 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 18 inches; sandy loam  
 Bg—18 to 27 inches; sandy loam  
 Cg—27 to 80 inches; sand

### **Arveson soils**

*Extent:* 1 to 5 percent of the unit  
*Geomorphic setting:* Drainageways on outwash plains; flats on outwash plains; rims of depressions on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 7.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; sandy loam  
 Ak—10 to 22 inches; sandy loam  
 Bkg—22 to 35 inches; sandy loam  
 2Cg—35 to 80 inches; sand

### **Hecla soils**

*Extent:* 1 to 5 percent of the unit  
*Geomorphic setting:* Flats and swales on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loamy fine sand  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* 3.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 5.1 inches  
*Content of organic matter in the upper 10 inches:* 1.4 percent

*Typical profile:*  
 Ap—0 to 9 inches; loamy fine sand  
 C—9 to 80 inches; fine sand

### **Major Uses of the Map Unit**

- Cropland

### **J22A—Renshaw loam, 0 to 3 percent slopes**

#### **Component Description**

#### **Renshaw and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 0 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat excessively drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 4.8 inches  
*Content of organic matter in the upper 10 inches:* 2.3 percent  
*Typical profile:*  
 Ap—0 to 7 inches; loam  
 Bw—7 to 15 inches; loam  
 2Bk—15 to 20 inches; gravelly loamy sand  
 2C—20 to 60 inches; gravelly loamy sand

#### **Fordtown soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.6 feet (April)  
*Deepest depth to wet zone:* 4.9 feet (August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 8.1 inches  
*Content of organic matter in the upper 10 inches:* 5 percent

*Typical profile:*

Ap,A—0 to 30 inches; loam  
 Bw—30 to 36 inches; loam  
 2C—36 to 80 inches; gravelly loamy sand

**Arvilla soils**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Hills on outwash plains  
*Position on the landform:* Backslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat excessively drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 3.8 inches  
*Content of organic matter in the upper 10 inches:* 2.4 percent  
*Typical profile:*  
 Ap—0 to 9 inches; sandy loam  
 Bw—9 to 14 inches; sandy loam  
 2Bk—14 to 48 inches; gravelly sand  
 2C—48 to 80 inches; gravelly sand

**Fordville soils**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 5.6 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap—0 to 6 inches; loam  
 Bw—6 to 24 inches; loam  
 2C—24 to 80 inches; gravelly loamy sand

**Major Uses of the Map Unit**

- Cropland

**J23A—Lamoure silty clay loam, 0 to 2 percent slopes, occasionally flooded****Component Description****Lamoure and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Flats on flood plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Alluvium  
*Months in which flooding does not occur:* January, February, September, October, November, December  
*Highest frequency of flooding:* Occasional (March, April, May, June, July, August)  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.9 inches  
*Content of organic matter in the upper 10 inches:* 6 percent  
*Typical profile:*  
 A1,A2—0 to 27 inches; silty clay loam  
 Cg1—27 to 34 inches; silty clay loam  
 Cg2—34 to 60 inches; silt loam

**Rauville soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats on flood plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Alluvium  
*Months in which flooding does not occur:* January, February, September, October, November, December  
*Highest frequency of flooding:* Frequent (March, April, May, June)  
*Shallowest depth to wet zone:* At the surface (March, April, May)  
*Deepest depth to wet zone:* 1.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.7 inches

*Content of organic matter in the upper 10 inches:* 5.5 percent

*Typical profile:*

A1,A2—0 to 27 inches; silty clay loam

Cg—27 to 45 inches; silty clay loam

2Cg—45 to 60 inches; stratified gravelly sand to clay loam

### **La Prairie soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Flats on flood plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Parent material:* Alluvium

*Months in which flooding does not occur:* January, February, September, October, November, December

*Highest frequency of flooding:* Occasional (March, April, May, June, July, August)

*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.9 inches

*Content of organic matter in the upper 10 inches:* 4 percent

*Typical profile:*

Ap—0 to 9 inches; loam

A—9 to 38 inches; loam

Bw—38 to 50 inches; loam

C—50 to 60 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J24F—Buse loam, 18 to 40 percent slopes**

### **Component Description**

#### **Buse and similar soils**

*Extent:* 75 to 95 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Summits, backslopes, and shoulders

*Slope range:* 18 to 40 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.4 inches

*Content of organic matter in the upper 10 inches:* 2 percent

*Typical profile:*

A—0 to 8 inches; loam

Bk—8 to 37 inches; loam

C—37 to 80 inches; loam

### **Darnen soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Footslopes

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Colluvium

*Flooding:* None

*Shallowest depth to wet zone:* 3.9 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.4 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 24 inches; loam

AB,Bw1—24 to 34 inches; loam

Bw2—34 to 80 inches; loam

### **Barnes soils**

*Extent:* 4 to 10 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Backslopes

*Slope range:* 12 to 18 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.7 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

- A—0 to 14 inches; loam
- Bw—14 to 18 inches; loam
- Bk—18 to 40 inches; loam
- C—40 to 80 inches; loam

**Major Uses of the Map Unit**

- Pasture and wildlife habitat

**J25A—Rauville silty clay loam, 0 to 1 percent slopes, frequently flooded****Component Description****Rauville and similar soils**

*Extent:* 80 to 95 percent of the unit  
*Geomorphic setting:* Flats on flood plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Alluvium  
*Months in which flooding does not occur:* January, February, September, October, November, December  
*Highest frequency of flooding:* Frequent (March, April, May, June)  
*Shallowest depth to wet zone:* At the surface (March, April, May)  
*Deepest depth to wet zone:* 1.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.7 inches  
*Content of organic matter in the upper 10 inches:* 5.5 percent  
*Typical profile:*  
 A1,A2—0 to 27 inches; silty clay loam  
 Cg—27 to 45 inches; silty clay loam  
 2Cg—45 to 60 inches; stratified gravelly sand to clay loam

**Lamoure soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats on flood plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Alluvium  
*Months in which flooding does not occur:* January, February, September, October, November, December

*Highest frequency of flooding:* Occasional (March, April, May, June, July, August)

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.9 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

- A1,A2—0 to 27 inches; silty clay loam
- Cg1—27 to 34 inches; silty clay loam
- Cg2—34 to 60 inches; silt loam

**Major Uses of the Map Unit**

- Pasture and wildlife habitat

**J26B—Darnen loam, 2 to 6 percent slopes****Component Description****Darnen and similar soils**

*Extent:* 85 to 95 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Footslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Colluvium  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.4 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap,A—0 to 24 inches; loam  
 AB,Bw1—24 to 34 inches; loam  
 Bw2—34 to 80 inches; loam

**Hokans soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Backslopes and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained

*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet  
 (January, February, July, August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.8  
 inches  
*Content of organic matter in the upper 10 inches:* 4.5  
 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; loam  
 Bw—15 to 22 inches; loam  
 Bk—22 to 40 inches; loam  
 C—40 to 80 inches; loam

### **Lakepark soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Flats and drainageways on  
 moraines  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60  
 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11  
 inches  
*Content of organic matter in the upper 10 inches:* 5.9  
 percent  
*Typical profile:*  
 Ap—0 to 8 inches; loam  
 A—8 to 27 inches; loam  
 Bg—27 to 41 inches; loam  
 Cg—41 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J27A—Hantho silt loam, 1 to 3 percent slopes**

### **Component Description**

#### **Hantho and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Flats and swales on lake plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60  
 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April)  
*Deepest depth to wet zone:* 5.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 12.3  
 inches  
*Content of organic matter in the upper 10 inches:* 5  
 percent  
*Typical profile:*  
 Ap,A—0 to 12 inches; silt loam  
 Bw—12 to 24 inches; silt loam  
 Bk,Bkg—24 to 65 inches; silt loam  
 Cg—65 to 80 inches; silt loam

### **Eckman soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Hills on lake plains  
*Position on the landform:* Backslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60  
 inches)  
*Drainage class:* Well drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 12.7  
 inches  
*Content of organic matter in the upper 10 inches:* 4.5  
 percent  
*Typical profile:*  
 Ap,A—0 to 13 inches; silt loam  
 Bw—13 to 22 inches; silt loam  
 Bk—22 to 30 inches; silt loam  
 BC,C—30 to 80 inches; silt loam

### **Quam soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Flats and drainageways on lake  
 plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60  
 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.5 inches

*Content of organic matter in the upper 10 inches:* 10.2 percent

*Typical profile:*

Ap—0 to 9 inches; silty clay loam

A—9 to 60 inches; silty clay loam

Bg—60 to 68 inches; silty clay loam

2Cg—68 to 80 inches; loam

### **Rondell soils**

*Extent:* 0 to 5 percent of the unit

*Geomorphic setting:* Knolls on lake plains

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10 inches

*Content of organic matter in the upper 10 inches:* 4.2 percent

*Typical profile:*

Ap—0 to 9 inches; silty clay loam

Bk—9 to 30 inches; silty clay loam

C—30 to 80 inches; silty clay loam

### **Tara soils**

*Extent:* 0 to 5 percent of the unit

*Geomorphic setting:* Flats and swales on lake plains

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained

*Parent material:* Lacustrine deposits over till

*Flooding:* None

*Shallowest depth to wet zone:* 1.5 feet (April)

*Deepest depth to wet zone:* 5.9 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.4 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 19 inches; silt loam

Bw—19 to 27 inches; silt loam

2Bk—27 to 33 inches; loam

2C—33 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

### **J28A—Vallers clay loam, 0 to 2 percent slopes, bouldery**

#### **Component Description**

#### **Vallers, bouldery, and similar soils**

*Extent:* 80 to 95 percent of the unit

*Geomorphic setting:* Flats on terraces; rims of depressions on terraces; drainageways on terraces

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.5 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

A1,A2—0 to 12 inches; clay loam

Bkg—12 to 60 inches; loam

Cg—60 to 80 inches; loam

#### **Parnell soils in depressions**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Depressions on terraces

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 2 feet (February, August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 10.4 inches

*Content of organic matter in the upper 10 inches:* 8 percent

*Typical profile:*

A1,A2—0 to 22 inches; silty clay loam

Btg—22 to 55 inches; silty clay

BCg—55 to 80 inches; silty clay loam

### **Major Uses of the Map Unit**

- Pasture and wildlife habitat

## **J29A—Cathro muck, depression, 0 to 1 percent slopes**

### **Component Description**

#### **Cathro and similar soils**

*Extent:* 85 to 95 percent of the unit

*Geomorphic setting:* Depressions on till plains, lake plains, and moraines

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Muck

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Organic material over till

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 2 feet (February, August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 14.4 inches

*Content of organic matter in the upper 10 inches:* 25 percent

*Typical profile:*

Op—0 to 9 inches; muck

Oa—9 to 18 inches; muck

A—18 to 50 inches; silt loam

Cg—50 to 80 inches; clay loam

#### **Colvin soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Flats on lake plains; rims of depressions on lake plains; drainageways on lake plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.5 inches

*Content of organic matter in the upper 10 inches:* 5 percent

*Typical profile:*

Ap—0 to 10 inches; silty clay loam

Bk—10 to 25 inches; silt loam

Cg—25 to 80 inches; stratified silt loam to silty clay loam

#### **Vallors soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Drainageways on till plains; flats on till plains; rims of depressions on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 14 inches; clay loam

Bkg—14 to 38 inches; loam

Cg—38 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J30A—Tara silt loam, 1 to 3 percent slopes**

### **Component Description**

#### **Tara and similar soils**

*Extent:* 85 to 95 percent of the unit

*Geomorphic setting:* Swales and flats on till plains

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained

*Parent material:* Lacustrine deposits over till

*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April)  
*Deepest depth to wet zone:* 5.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.4 inches  
*Content of organic matter in the upper 10 inches:* 6 percent  
*Typical profile:*  
 Ap,A—0 to 19 inches; silt loam  
 Bw—19 to 27 inches; silt loam  
 2Bk—27 to 33 inches; loam  
 2C—33 to 80 inches; loam

### **Balaton soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Knolls on till plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.7 inches  
*Content of organic matter in the upper 10 inches:* 6 percent  
*Typical profile:*  
 Ap,A—0 to 13 inches; loam  
 ABk,Bk—13 to 31 inches; loam  
 C—31 to 80 inches; loam

### **Byrne soils**

*Extent:* 1 to 5 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Backslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.4 inches

*Content of organic matter in the upper 10 inches:* 3.9 percent

#### *Typical profile:*

Ap—0 to 8 inches; silt loam  
 Bw—8 to 23 inches; silt loam  
 Bk—23 to 28 inches; silt loam  
 2Bk—28 to 72 inches; loam  
 2C—72 to 80 inches; loam

### **Quam soils**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Drainageways and flats on till plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 10.2 percent  
*Typical profile:*  
 Ap—0 to 9 inches; silty clay loam  
 A—9 to 60 inches; silty clay loam  
 Bg—60 to 68 inches; silty clay loam  
 2Cg—68 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J31B—Arvilla-Sandberg complex, 2 to 6 percent slopes**

### **Component Description**

#### **Arvilla and similar soils**

*Extent:* 35 to 55 percent of the unit  
*Geomorphic setting:* Hills on outwash plains  
*Position on the landform:* Backslopes and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat excessively drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 3.8 inches

*Content of organic matter in the upper 10 inches:* 2.4 percent

*Typical profile:*

Ap—0 to 9 inches; sandy loam

Bw—9 to 14 inches; sandy loam

2Bk—14 to 48 inches; gravelly sand

2C—48 to 80 inches; gravelly sand

### **Sandberg and similar soils**

*Extent:* 20 to 40 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Summits and shoulders

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Gravelly sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Excessively drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 2.7 inches

*Content of organic matter in the upper 10 inches:* 1.8 percent

*Typical profile:*

Ap—0 to 8 inches; gravelly sandy loam

Bk—8 to 32 inches; very gravelly sand

C—32 to 80 inches; gravelly sand

### **Renshaw soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Summits and backslopes

*Slope range:* 0 to 3 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat excessively drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 4.8 inches

*Content of organic matter in the upper 10 inches:* 2.3 percent

*Typical profile:*

Ap—0 to 7 inches; loam

Bw—7 to 15 inches; loam

2Bk—15 to 20 inches; gravelly loamy sand

2C—20 to 60 inches; gravelly loamy sand

### **Sioux soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Shoulders

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Excessively drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 4 inches

*Content of organic matter in the upper 10 inches:* 1.2 percent

*Typical profile:*

A—0 to 5 inches; loam

AC—5 to 8 inches; gravelly loam

C—8 to 60 inches; very gravelly sand

### **Fordtown soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Flats and swales on outwash plains

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 3.9 feet (April)

*Deepest depth to wet zone:* 4.9 feet (August, September)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 8.1 inches

*Content of organic matter in the upper 10 inches:* 5 percent

*Typical profile:*

Ap,A—0 to 30 inches; loam

Bw—30 to 36 inches; loam

2C—36 to 80 inches; gravelly loamy sand

### **Major Uses of the Map Unit**

- Cropland

### **J32A—Bigstone silty clay loam, depressional, 0 to 1 percent slopes**

#### **Component Description**

#### **Bigstone and similar soils**

*Extent:* 70 to 90 percent of the unit

*Geomorphic setting:* Depressions on lake plains, till plains, and moraines

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 2 feet (February, August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 10.9 inches

*Content of organic matter in the upper 10 inches:* 10.5 percent

*Typical profile:*

Ap—0 to 10 inches; silty clay loam

A—10 to 30 inches; silty clay loam

Cg—30 to 80 inches; loam

#### **Urness soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Depressions on moraines, lake plains, and till plains

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Mucky silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Lacustrine deposits over till

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 2 feet (February, August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 11 inches

*Content of organic matter in the upper 10 inches:* 15 percent

*Typical profile:*

Ap—0 to 9 inches; mucky silt loam

Cg—9 to 32 inches; mucky silt loam

2Cg—32 to 80 inches; silty clay loam

#### **Colvin soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Flats on lake plains; drainageways on lake plains; rims of depressions on lake plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.5 inches

*Content of organic matter in the upper 10 inches:* 5 percent

*Typical profile:*

Ap—0 to 10 inches; silty clay loam

Bk—10 to 25 inches; silt loam

Cg—25 to 80 inches; stratified silt loam to silty clay loam

#### **Vallers soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Drainageways on till plains; flats on till plains; rims of depressions on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 14 inches; clay loam

Bkg—14 to 38 inches; loam

Cg—38 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J33D2—Sisseton-Heimdal complex, 12 to 20 percent slopes, eroded**

### **Component Description**

#### **Sisseton, eroded, and similar soils**

*Extent:* 60 to 80 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Shoulders

*Slope range:* 12 to 20 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.1 inches

*Content of organic matter in the upper 10 inches:* 1.7 percent

*Typical profile:*

Ap—0 to 8 inches; loam

Bk—8 to 36 inches; stratified sandy loam to loam to silt loam

C—36 to 80 inches; stratified sandy loam to loam to silt loam

#### **Heimdal, eroded, and similar soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Summits

*Slope range:* 12 to 20 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.7 inches

*Content of organic matter in the upper 10 inches:* 3.5 percent

*Typical profile:*

Ap—0 to 10 inches; loam

Bw—10 to 21 inches; loam

Bk—21 to 38 inches; stratified sandy loam to loam to silt loam

C—38 to 80 inches; stratified sandy loam to loam to silt loam

#### **Esmond soils that are eroded**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Shoulders and summits

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.4 inches

*Content of organic matter in the upper 10 inches:* 1.7 percent

*Typical profile:*

Ap—0 to 8 inches; loam

Bk—8 to 30 inches; stratified sandy loam to loam to silt loam

C—30 to 80 inches; stratified sandy loam to loam to silt loam

#### **Heimdal soils that are slightly eroded**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Backslopes

*Slope range:* 12 to 20 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.5 inches

*Content of organic matter in the upper 10 inches:* 3.8 percent

*Typical profile:*

Ap—0 to 8 inches; loam

Bw—8 to 16 inches; loam

Bk—16 to 27 inches; stratified sandy loam to loam to silt loam

C—27 to 80 inches; stratified sandy loam to loam to silt loam

**Emrick soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Swales and hills on moraines  
*Position on the landform:* Footslopes  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.3 inches  
*Content of organic matter in the upper 10 inches:* 5.5 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; loam  
 Bw—15 to 25 inches; loam  
 Bk—25 to 36 inches; stratified sandy loam to loam to silt loam  
 C—36 to 80 inches; stratified sandy loam to loam to silt loam

**Major Uses of the Map Unit**

- Cropland

**J34B—Byrne-Buse complex, 2 to 6 percent slopes****Component Description****Byrne and similar soils**

*Extent:* 35 to 55 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Summits and backslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.6 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap—0 to 10 inches; silt loam  
 Bw—10 to 23 inches; silt loam  
 Bk—23 to 28 inches; silt loam  
 2Bk—28 to 40 inches; loam  
 2C—40 to 80 inches; loam

**Buse and similar soils**

*Extent:* 25 to 45 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Shoulders and summits  
*Slope range:* 3 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.6 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 2 percent  
*Typical profile:*  
 Ap—0 to 8 inches; loam  
 Bk—8 to 40 inches; loam  
 C—40 to 60 inches; loam

**Buse soils that are eroded**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Shoulders  
*Slope range:* 3 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.6 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 1.9 percent  
*Typical profile:*  
 Ap—0 to 9 inches; loam  
 Bk—9 to 34 inches; loam  
 C—34 to 80 inches; loam

**Hokans soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Summits and backslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.6 feet (January, February, July, August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.8 inches  
*Content of organic matter in the upper 10 inches:* 4.5 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; loam  
 Bw—15 to 22 inches; loam  
 Bk—22 to 40 inches; loam  
 C—40 to 80 inches; loam

**Tara soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Flats and swales on till plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April)  
*Deepest depth to wet zone:* 5.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.4 inches  
*Content of organic matter in the upper 10 inches:* 6 percent  
*Typical profile:*  
 Ap,A—0 to 19 inches; silt loam  
 Bw—19 to 27 inches; silt loam  
 2Bk—27 to 33 inches; loam  
 2C—33 to 80 inches; loam

**Major Uses of the Map Unit**

- Cropland

**J35B—Hokans-Buse complex, 2 to 6 percent slopes****Component Description****Hokans and similar soils**

*Extent:* 35 to 55 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Backslopes and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.8 inches  
*Content of organic matter in the upper 10 inches:* 4.5 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; loam  
 Bw—15 to 22 inches; loam  
 Bk—22 to 40 inches; loam  
 C—40 to 80 inches; loam

**Buse and similar soils**

*Extent:* 20 to 40 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Summits and shoulders  
*Slope range:* 3 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 2 percent  
*Typical profile:*  
 Ap—0 to 8 inches; loam  
 Bk—8 to 40 inches; loam  
 C—40 to 60 inches; loam

**Barnes soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Summits  
*Slope range:* 3 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.8 inches  
*Content of organic matter in the upper 10 inches:* 4.5 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; loam  
 Bw—15 to 22 inches; loam  
 Bk—22 to 40 inches; loam  
 C—40 to 80 inches; loam

**Buse soils that are eroded**

*Extent:* 5 to 20 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Shoulders  
*Slope range:* 3 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.6 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 1.9 percent  
*Typical profile:*  
 Ap—0 to 9 inches; loam  
 Bk—9 to 34 inches; loam  
 C—34 to 80 inches; loam

**Svea soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Swales and flats on till plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.6 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.9 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 13 inches; loam

Bw—13 to 17 inches; clay loam

Bk—17 to 27 inches; loam

C—27 to 80 inches; loam

**Major Uses of the Map Unit**

- Cropland

**J36C2—Buse-Barnes complex, 6 to 12 percent slopes, eroded****Component Description****Buse, eroded, and similar soils**

*Extent:* 35 to 55 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Shoulders  
*Slope range:* 6 to 12 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 1.9 percent  
*Typical profile:*  
 Ap—0 to 9 inches; loam  
 Bk—9 to 34 inches; loam  
 C—34 to 80 inches; loam

**Barnes, eroded, and similar soils**

*Extent:* 10 to 30 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Summits  
*Slope range:* 6 to 12 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 3.5 percent

*Typical profile:*

Ap,A—0 to 10 inches; loam

Bw—10 to 22 inches; loam

Bk—22 to 42 inches; loam

C—42 to 80 inches; loam

### **Barnes soils that are slightly eroded**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Backslopes

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.8 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap,A—0 to 15 inches; loam

Bw—15 to 22 inches; loam

Bk—22 to 40 inches; loam

C—40 to 80 inches; loam

### **Buse soils that are slightly eroded**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Summits

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.4 inches

*Content of organic matter in the upper 10 inches:* 2 percent

*Typical profile:*

Ap—0 to 8 inches; loam

Bk—8 to 35 inches; loam

C—35 to 60 inches; loam

### **Darnen soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Footslopes

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Colluvium

*Flooding:* None

*Shallowest depth to wet zone:* 3.9 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.4 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 24 inches; loam

AB,Bw1—24 to 34 inches; loam

Bw2—34 to 80 inches; loam

### **Langhei soils that are eroded**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Shoulders

*Slope range:* 12 to 18 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.4 inches

*Content of organic matter in the upper 10 inches:* 1.2 percent

*Typical profile:*

Ap—0 to 6 inches; loam

Bk—6 to 15 inches; loam

C—15 to 60 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J37D2—Langhei-Barnes complex, 12 to 20 percent slopes, eroded**

### **Component Description**

#### **Langhei, eroded, and similar soils**

*Extent:* 50 to 70 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Summits and shoulders  
*Slope range:* 12 to 20 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 1.2 percent  
*Typical profile:*  
 Ap—0 to 6 inches; loam  
 Bk—6 to 15 inches; loam  
 C—15 to 60 inches; loam

#### **Barnes, eroded, and similar soils**

*Extent:* 10 to 20 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Summits  
*Slope range:* 12 to 20 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.6 inches  
*Content of organic matter in the upper 10 inches:* 3.5 percent  
*Typical profile:*  
 Ap,A—0 to 10 inches; loam  
 Bw—10 to 22 inches; loam  
 Bk—22 to 42 inches; loam  
 C—42 to 80 inches; loam

#### **Buse soils that are eroded**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Summits and shoulders

*Slope range:* 12 to 20 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 1.9 percent  
*Typical profile:*  
 Ap—0 to 9 inches; loam  
 Bk—9 to 34 inches; loam  
 C—34 to 80 inches; loam

#### **Darnen soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Footslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Colluvium  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.4 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap,A—0 to 24 inches; loam  
 AB,Bw1—24 to 34 inches; loam  
 Bw2—34 to 80 inches; loam

#### **Barnes soils that are slightly eroded**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Backslopes and summits  
*Slope range:* 12 to 20 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.7 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap,A—0 to 14 inches; loam

Bw—14 to 18 inches; loam

Bk—18 to 37 inches; loam

C—37 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J38B—Zell-Eckman complex, 2 to 6 percent slopes**

### **Component Description**

#### **Zell and similar soils**

*Extent:* 30 to 55 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Shoulders and summits

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.1 inches

*Content of organic matter in the upper 10 inches:* 2.5 percent

*Typical profile:*

Ap—0 to 10 inches; silt loam

Bk—10 to 43 inches; silt loam

C—43 to 80 inches; silt loam

#### **Eckman and similar soils**

*Extent:* 30 to 50 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Backslopes and summits

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 12.7 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap,A—0 to 15 inches; silt loam

Bw—15 to 32 inches; silt loam

Bk—32 to 42 inches; silt loam

C—42 to 80 inches; silt loam

#### **Zell soils that are eroded**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Shoulders

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11 inches

*Content of organic matter in the upper 10 inches:* 1.9 percent

*Typical profile:*

Ap—0 to 9 inches; silt loam

Bk—9 to 28 inches; silt loam

C—28 to 80 inches; silt loam

#### **Egeland soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Summits and backslopes

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 6.4 inches

*Content of organic matter in the upper 10 inches:* 2.6 percent

*Typical profile:*

Ap—0 to 8 inches; sandy loam

Bw<sub>1</sub>,Bw<sub>2</sub>—8 to 30 inches; sandy loam

Bw<sub>3</sub>—30 to 35 inches; loamy sand

Bk—35 to 48 inches; loamy fine sand

C—48 to 80 inches; loamy fine sand

#### Hantho soils

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Flats and swales on moraines

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Shallowest depth to wet zone:* 1.5 feet (April)

*Deepest depth to wet zone:* 5.9 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 12.3 inches

*Content of organic matter in the upper 10 inches:* 5 percent

*Typical profile:*

Ap,A—0 to 12 inches; silt loam

Bw—12 to 24 inches; silt loam

Bk,Bkg—24 to 65 inches; silt loam

Cg—65 to 80 inches; silt loam

#### Major Uses of the Map Unit

- Cropland

### J38C2—Zell-Eckman complex, 6 to 12 percent slopes, eroded

#### Component Description

##### Zell, eroded, and similar soils

*Extent:* 35 to 55 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Shoulders

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11 inches

*Content of organic matter in the upper 10 inches:* 1.9 percent

*Typical profile:*

Ap—0 to 9 inches; silt loam

Bk—9 to 28 inches; silt loam

C—28 to 80 inches; silt loam

#### Eckman, eroded, and similar soils

*Extent:* 10 to 30 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Summits

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 12.5 inches

*Content of organic matter in the upper 10 inches:* 2.9 percent

*Typical profile:*

Ap—0 to 8 inches; silt loam

Bw—8 to 31 inches; silt loam

Bk—31 to 50 inches; silt loam

C—50 to 80 inches; silt loam

#### Zell soils that are slightly eroded

*Extent:* 5 to 25 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Summits

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.1 inches

*Content of organic matter in the upper 10 inches:* 2.5 percent

*Typical profile:*

Ap—0 to 10 inches; silt loam

Bk—10 to 43 inches; silt loam

C—43 to 80 inches; silt loam

#### Hantho soils

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Flats and swales on moraines

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April)  
*Deepest depth to wet zone:* 5.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 12.3 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap,A—0 to 12 inches; silt loam  
 Bw—12 to 24 inches; silt loam  
 Bk,Bkg—24 to 65 inches; silt loam  
 Cg—65 to 80 inches; silt loam

#### **Eckman soils that are slightly eroded**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Backslopes  
*Slope range:* 6 to 12 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 12.7 inches  
*Content of organic matter in the upper 10 inches:* 4.5 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; silt loam  
 Bw—15 to 32 inches; silt loam  
 Bk—32 to 42 inches; silt loam  
 C—42 to 80 inches; silt loam

#### **Egeland soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Backslopes and summits  
*Slope range:* 6 to 12 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None

*Available water capacity to a depth of 60 inches:* 6.4 inches  
*Content of organic matter in the upper 10 inches:* 2.6 percent  
*Typical profile:*  
 Ap—0 to 8 inches; sandy loam  
 Bw1,Bw2—8 to 30 inches; sandy loam  
 Bw3—30 to 35 inches; loamy sand  
 Bk—35 to 48 inches; loamy fine sand  
 C—48 to 80 inches; loamy fine sand

#### **Major Uses of the Map Unit**

- Cropland

#### **J39A—Udorthents, shallow (sanitary landfill)**

- Udorthents consist primarily of soil fill material over refuse material in a sanitary landfill. The cover material is dominantly loamy soil material. As much as 30 percent of this map unit is covered by impervious surfaces. Because of the variability of this map unit, interpretations for specific uses are not available. Onsite investigation is needed.

#### **J40A—Foxlake silty clay, 0 to 2 percent slopes**

##### **Component Description**

##### **Foxlake and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Drainageways and flats on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April, May)  
*Deepest depth to wet zone:* 2.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.2 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap—0 to 23 inches; silty clay  
 Bkg—23 to 39 inches; silty clay  
 Cg—39 to 80 inches; silty clay

**Audubon soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Backslopes  
*Slope range:* 1 to 4 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April, May)  
*Deepest depth to wet zone:* 5.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9.5 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap,A—0 to 14 inches; silty clay  
 Bkss—14 to 36 inches; silty clay  
 C—36 to 80 inches; silty clay

**Calcareous soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Flats on till plains; rims of depressions on till plains; drainageways on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April, May)  
*Deepest depth to wet zone:* 2.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silty clay  
 Bkg—10 to 25 inches; silty clay  
 Cg—25 to 80 inches; silty clay

**Depressional soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Depressions on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 11.3 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap,A—0 to 26 inches; silty clay  
 Bg—26 to 33 inches; silty clay  
 Cg—33 to 80 inches; silty clay

**Major Uses of the Map Unit**

- Cropland

**J41A—Urness mucky silty clay loam, depressional, 0 to 1 percent slopes****Component Description****Urness and similar soils**

*Extent:* 70 to 90 percent of the unit  
*Geomorphic setting:* Depressions on lake plains, till plains, and moraines  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Mucky silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 11 inches  
*Content of organic matter in the upper 10 inches:* 15 percent  
*Typical profile:*  
 Ap—0 to 9 inches; mucky silty clay loam  
 Cg—9 to 32 inches; mucky silt loam  
 2Cg—32 to 80 inches; silty clay loam

**Bigstone soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Depressions on moraines, lake plains, and till plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 10.9 inches  
*Content of organic matter in the upper 10 inches:* 10.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silty clay loam  
 A1,A2—10 to 30 inches; silty clay loam  
 Cg—30 to 80 inches; loam

**Colvin soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Rims of depressions on lake plains; flats on lake plains; drainageways on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silty clay loam  
 Bk—10 to 25 inches; silt loam  
 Cg—25 to 80 inches; stratified silt loam to silty clay loam

**Vallers soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Flats on till plains; rims of depressions on till plains; drainageways on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 14 inches; clay loam

Bkg—14 to 38 inches; loam

Cg—38 to 80 inches; loam

**Major Uses of the Map Unit**

- Cropland

**J42C—Sandberg-Arvilla complex, 6 to 12 percent slopes****Component Description****Sandberg and similar soils**

*Extent:* 50 to 70 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Summits and shoulders

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Gravelly sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Excessively drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 2.8 inches

*Content of organic matter in the upper 10 inches:* 2 percent

*Typical profile:*

Ap—0 to 10 inches; gravelly sandy loam

Bk—10 to 22 inches; gravelly sand

C—22 to 80 inches; gravelly sand

**Arvilla and similar soils**

*Extent:* 25 to 35 percent of the unit

*Geomorphic setting:* Hills on outwash plains  
*Position on the landform:* Backslopes and summits  
*Slope range:* 6 to 12 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat excessively drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 3.8 inches  
*Content of organic matter in the upper 10 inches:* 2.4 percent  
*Typical profile:*  
 A—0 to 9 inches; sandy loam  
 Bw—9 to 14 inches; sandy loam  
 2Bk—14 to 48 inches; gravelly sand  
 2C—48 to 80 inches; gravelly sand

#### **Everts soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Footslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Colluvium  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.3 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap,AB—0 to 38 inches; loam  
 Bw—38 to 54 inches; loam  
 2C—54 to 80 inches; very gravelly coarse sand

#### **Major Uses of the Map Unit**

- Cropland

### **J43A—Quam, Cathro, and Urness soils, ponded, 0 to 1 percent slopes**

#### **Component Description**

#### **Quam, depressional, and similar soils**

*Extent:* 0 to 85 percent of the unit

*Geomorphic setting:* Depressions on lake plains, moraines, and till plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Depth to wet zone:* At the surface all year  
*Shallowest ponding:* 0.5 foot (August)  
*Deepest ponding:* 3 feet (March, April, May)  
*Available water capacity to a depth of 60 inches:* 12.5 inches  
*Content of organic matter in the upper 10 inches:* 10.5 percent  
*Typical profile:*  
 A—0 to 33 inches; silt loam  
 Cg—33 to 50 inches; silty clay loam  
 2Cg—50 to 60 inches; clay loam

#### **Cathro and similar soils**

*Extent:* 0 to 85 percent of the unit  
*Geomorphic setting:* Depressions on till plains, lake plains, and moraines  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Muck  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Organic material over till  
*Flooding:* None  
*Depth to wet zone:* At the surface all year  
*Shallowest ponding:* 0.5 foot (August)  
*Deepest ponding:* 3 feet (March, April, May)  
*Available water capacity to a depth of 60 inches:* 20 inches  
*Content of organic matter in the upper 10 inches:* 25 percent  
*Typical profile:*  
 Oa1—0 to 20 inches; muck  
 Oa2—20 to 34 inches; muck  
 A—34 to 40 inches; loam  
 Cg—40 to 80 inches; loam

#### **Urness and similar soils**

*Extent:* 0 to 85 percent of the unit  
*Geomorphic setting:* Depressions on lake plains, moraines, and till plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Mucky silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained

*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Depth to wet zone:* At the surface all year  
*Shallowest ponding:* 0.5 foot (August)  
*Deepest ponding:* 3 feet (March, April, May)  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 15 percent  
*Typical profile:*  
 A—0 to 20 inches; mucky silt loam  
 Cg—20 to 45 inches; mucky silt loam  
 2Cg—45 to 60 inches; loam

### **Colvin soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Rims of depressions on lake plains; drainageways on lake plains; flats on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silty clay loam  
 Bk—10 to 25 inches; silt loam  
 Cg—25 to 80 inches; stratified silt loam to silty clay loam

### **Vallers soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Rims of depressions on till plains; flats on till plains; drainageways on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap,A—0 to 14 inches; clay loam  
 Bkg—14 to 38 inches; loam  
 Cg—38 to 80 inches; loam

### **Major Uses of the Map Unit**

- Wildlife habitat

## **J44B—Esmond-Heimdal complex, 2 to 6 percent slopes**

### **Component Description**

#### **Esmond and similar soils**

*Extent:* 35 to 55 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Shoulders and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9.6 inches  
*Content of organic matter in the upper 10 inches:* 2.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; loam  
 Bk—10 to 30 inches; stratified sandy loam to loam to silt loam  
 C—30 to 80 inches; stratified sandy loam to loam to silt loam

#### **Heimdal and similar soils**

*Extent:* 30 to 50 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Backslopes and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.7 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap—0 to 10 inches; loam

Bw—10 to 22 inches; loam

Bk—22 to 42 inches; stratified sandy loam to loam to silt loam

C—42 to 80 inches; stratified sandy loam to loam to silt loam

### **Esmond soils that are eroded**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Shoulders

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.5 inches

*Content of organic matter in the upper 10 inches:* 1.9 percent

*Typical profile:*

Ap—0 to 9 inches; loam

Bk—9 to 44 inches; stratified sandy loam to loam to silt loam

C—44 to 80 inches; stratified sandy loam to loam to silt loam

### **Emrick soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Swales and flats on moraines

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.3 inches

*Content of organic matter in the upper 10 inches:* 5.5 percent

*Typical profile:*

Ap,A—0 to 15 inches; loam

Bw—15 to 25 inches; loam

Bk—25 to 36 inches; stratified sandy loam to loam to silt loam

C—36 to 80 inches; stratified sandy loam to loam to silt loam

### **Major Uses of the Map Unit**

- Cropland

## **J44C2—Esmond-Heimdal complex, 6 to 12 percent slopes, eroded**

### **Component Description**

#### **Esmond, eroded, and similar soils**

*Extent:* 30 to 50 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Shoulders

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.4 inches

*Content of organic matter in the upper 10 inches:* 1.7 percent

*Typical profile:*

Ap—0 to 8 inches; loam

Bk—8 to 30 inches; stratified sandy loam to loam to silt loam

C—30 to 80 inches; stratified sandy loam to loam to silt loam

#### **Heimdal, eroded, and similar soils**

*Extent:* 10 to 30 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Summits

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.5 inches

*Content of organic matter in the upper 10 inches:* 2.7 percent

*Typical profile:*

Ap—0 to 7 inches; loam

Bw—7 to 16 inches; loam

Bk—16 to 36 inches; stratified sandy loam to loam to silt loam

C—36 to 80 inches; stratified sandy loam to loam to silt loam

### **Esmond soils that are slightly eroded**

*Extent:* 5 to 25 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Summits

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.6 inches

*Content of organic matter in the upper 10 inches:* 2.5 percent

*Typical profile:*

Ap—0 to 10 inches; loam

Bk—10 to 30 inches; stratified sandy loam to loam to silt loam

C—30 to 80 inches; stratified sandy loam to loam to silt loam

### **Heimdal soils that are slightly eroded**

*Extent:* 5 to 25 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Backslopes

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.5 inches

*Content of organic matter in the upper 10 inches:* 3.8 percent

*Typical profile:*

Ap—0 to 8 inches; loam

Bw—8 to 16 inches; loam

Bk—16 to 27 inches; stratified sandy loam to loam to silt loam

C—27 to 80 inches; stratified sandy loam to loam to silt loam

### **Emrick soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Hills and swales on moraines

*Position on the landform:* Footslopes

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.3 inches

*Content of organic matter in the upper 10 inches:* 5.5 percent

*Typical profile:*

Ap,A—0 to 15 inches; loam

Bw—15 to 25 inches; loam

Bk—25 to 36 inches; stratified sandy loam to loam to silt loam

C—36 to 80 inches; stratified sandy loam to loam to silt loam

### **Sisseton soils that are eroded**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Hills on moraines

*Position on the landform:* Shoulders

*Slope range:* 12 to 18 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.1 inches

*Content of organic matter in the upper 10 inches:* 1.7 percent

*Typical profile:*

Ap—0 to 8 inches; loam

Bk—8 to 36 inches; stratified sandy loam to loam to silt loam

C—36 to 80 inches; stratified sandy loam to loam to silt loam

### **Major Uses of the Map Unit**

- Cropland

## **J45F—Sandberg sandy loam, 12 to 40 percent slopes**

### **Component Description**

#### **Sandberg and similar soils**

*Extent:* 70 to 90 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Backslopes, shoulders, and summits

*Slope range:* 12 to 40 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Excessively drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 3.6 inches

*Content of organic matter in the upper 10 inches:* 2.5 percent

*Typical profile:*

A1,A2—0 to 12 inches; sandy loam

Bk—12 to 28 inches; gravelly sand

C—28 to 80 inches; gravelly sand

#### **Everts soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Footslopes

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Colluvium

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.3 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,AB—0 to 38 inches; loam

Bw—38 to 54 inches; loam

2C—54 to 80 inches; very gravelly coarse sand

#### **Arvilla soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Backslopes and summits

*Slope range:* 6 to 12 percent

*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat excessively drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 3.8 inches

*Content of organic matter in the upper 10 inches:* 2.4 percent

*Typical profile:*

A—0 to 9 inches; sandy loam

Bw—9 to 14 inches; sandy loam

2Bk—14 to 48 inches; gravelly sand

2C—48 to 80 inches; gravelly sand

#### **Sioux soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Shoulders

*Slope range:* 12 to 40 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Excessively drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 4 inches

*Content of organic matter in the upper 10 inches:* 1.2 percent

*Typical profile:*

A—0 to 5 inches; loam

AC—5 to 8 inches; gravelly loam

C—8 to 60 inches; very gravelly sand

### Major Uses of the Map Unit

- Pasture and wildlife habitat

### J46B—Byrne silt loam, 2 to 4 percent slopes

#### Component Description

#### Byrne and similar soils

*Extent:* 75 to 95 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Backslopes, summits, and shoulders

*Slope range:* 2 to 4 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Lacustrine deposits over till

*Flooding:* None

*Shallowest depth to wet zone:* 3.9 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.4 inches

*Content of organic matter in the upper 10 inches:* 3.9 percent

*Typical profile:*

Ap—0 to 8 inches; silt loam

Bw—8 to 23 inches; silt loam

Bk—23 to 28 inches; silt loam

2Bk—28 to 72 inches; loam

2C—72 to 80 inches; loam

#### Hokans soils

*Extent:* 0 to 15 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Shoulders and summits

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 3.9 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.8 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap,A—0 to 15 inches; loam

Bw—15 to 22 inches; loam

Bk—22 to 40 inches; loam

C—40 to 80 inches; loam

#### Buse soils

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Shoulders

*Slope range:* 3 to 6 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.4 inches

*Content of organic matter in the upper 10 inches:* 2 percent

*Typical profile:*

Ap—0 to 8 inches; loam

Bk—8 to 40 inches; loam

C—40 to 60 inches; loam

#### Quam soils

*Extent:* 0 to 5 percent of the unit

*Geomorphic setting:* Flats and drainageways on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.5 inches

*Content of organic matter in the upper 10 inches:* 10.2 percent

*Typical profile:*

Ap—0 to 9 inches; silty clay loam

A—9 to 60 inches; silty clay loam

Bg—60 to 68 inches; silty clay loam

2Cg—68 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

#### **J47A—Swenoda sandy loam, moderately wet, 1 to 3 percent slopes**

##### **Component Description**

##### **Swenoda and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Outwash over lacustrine deposits; outwash over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9.9 inches  
*Content of organic matter in the upper 10 inches:* 4.5 percent  
*Typical profile:*  
 Ap,A—0 to 17 inches; sandy loam  
 Bw—17 to 29 inches; sandy loam  
 2C—29 to 80 inches; silt loam

##### **Clontarf soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.3 feet (April)  
*Deepest depth to wet zone:* 3 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; sandy loam

Bw—15 to 25 inches; sandy loam  
 2C—25 to 80 inches; sand

##### **Egeland soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 7.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; sandy loam  
 Bw—15 to 40 inches; sandy loam  
 Bk—40 to 60 inches; sandy loam  
 C—60 to 80 inches; loamy sand

### **Major Uses of the Map Unit**

- Cropland

#### **J48A—Bigstone and Parnell soils, ponded, 0 to 1 percent slopes**

##### **Component Description**

##### **Bigstone and similar soils**

*Extent:* 0 to 85 percent of the unit  
*Geomorphic setting:* Depressions on moraines, lake plains, and till plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Depth to wet zone:* At the surface all year  
*Shallowest ponding:* 0.5 foot (August)  
*Deepest ponding:* 3 feet (March, April, May)  
*Available water capacity to a depth of 60 inches:* 11.3 inches  
*Content of organic matter in the upper 10 inches:* 10.5 percent  
*Typical profile:*  
 A1—0 to 18 inches; silty clay loam

A2—18 to 48 inches; silty clay loam  
2Cg—48 to 80 inches; loam

### **Parnell and similar soils**

*Extent:* 0 to 85 percent of the unit  
*Geomorphic setting:* Depressions on till plains, lake plains, and moraines  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* At the surface all year  
*Shallowest ponding:* 0.5 foot (August)  
*Deepest ponding:* 3 feet (March, April, May)  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 8 percent  
*Typical profile:*  
A1,A2—0 to 22 inches; silty clay loam  
Btg—22 to 55 inches; silty clay  
BCg—55 to 80 inches; silty clay loam

### **Colvin soils**

*Extent:* 0 to 15 percent of the unit  
*Geomorphic setting:* Drainageways on lake plains; rims of depressions on lake plains; flats on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
Ap—0 to 10 inches; silty clay loam  
Bk—10 to 25 inches; silt loam  
Cg—25 to 80 inches; stratified silt loam to silty clay loam

### **Vallers soils**

*Extent:* 0 to 15 percent of the unit

*Geomorphic setting:* Drainageways on till plains; flats on till plains; rims of depressions on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 14 inches; clay loam

Bkg—14 to 38 inches; loam

Cg—38 to 80 inches; loam

### **Major Uses of the Map Unit**

- Wildlife habitat

## **J49A—Lakepark-Parnell, depressional, complex, 0 to 2 percent slopes**

### **Component Description**

#### **Lakepark and similar soils**

*Extent:* 40 to 60 percent of the unit

*Geomorphic setting:* Flats and drainageways on moraines

*Slope range:* 1 to 2 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11 inches

*Content of organic matter in the upper 10 inches:* 5.9 percent

*Typical profile:*

Ap—0 to 8 inches; loam

A—8 to 27 inches; loam

Bg—27 to 41 inches; loam

Cg—41 to 80 inches; loam

**Parnell, depressional, and similar soils**

*Extent:* 25 to 45 percent of the unit  
*Geomorphic setting:* Depressions on moraines  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 8 percent  
*Typical profile:*  
 A1,A2—0 to 22 inches; silty clay loam  
 Btg—22 to 55 inches; silty clay  
 BCg—55 to 80 inches; silty clay loam

**Emrick soils**

*Extent:* 5 to 10 percent of the unit  
*Geomorphic setting:* Swales and flats on moraines  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.3 inches  
*Content of organic matter in the upper 10 inches:* 5.5 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; loam  
 Bw—15 to 25 inches; loam  
 Bk—25 to 36 inches; stratified sandy loam to loam to silt loam  
 C—36 to 80 inches; stratified sandy loam to loam to silt loam

**Vallers soils**

*Extent:* 5 to 10 percent of the unit

*Geomorphic setting:* Rims of depressions on till plains; flats on till plains; drainageways on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap,A—0 to 14 inches; clay loam  
 Bkg—14 to 38 inches; loam  
 Cg—38 to 80 inches; loam

**Major Uses of the Map Unit**

- Cropland

**J50A—Balaton-Tara complex, 1 to 3 percent slopes****Component Description****Balaton and similar soils**

*Extent:* 35 to 55 percent of the unit  
*Geomorphic setting:* Knolls on lake plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.7 inches  
*Content of organic matter in the upper 10 inches:* 6 percent  
*Typical profile:*  
 Ap,A—0 to 13 inches; loam  
 ABk,Bk—13 to 31 inches; loam  
 C—31 to 80 inches; loam

**Tara and similar soils**

*Extent:* 25 to 45 percent of the unit

*Geomorphic setting:* Flats and swales on lake plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April)  
*Deepest depth to wet zone:* 5.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.8 inches  
*Content of organic matter in the upper 10 inches:* 6 percent  
*Typical profile:*  
 Ap,A—0 to 22 inches; silty clay loam  
 Bw—22 to 38 inches; silt loam  
 2C—38 to 80 inches; loam

#### **McIntosh soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Lake plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April)  
*Deepest depth to wet zone:* 5.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.8 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap—0 to 8 inches; silty clay loam  
 Ak,Bk—8 to 27 inches; silt loam  
 2C—27 to 60 inches; loam

#### **Well drained soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Knolls on lake plains  
*Slope range:* 2 to 4 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.6 inches  
*Content of organic matter in the upper 10 inches:* 6 percent  
*Typical profile:*  
 Ap—0 to 10 inches; loam  
 Bk—10 to 27 inches; loam  
 C—27 to 80 inches; loam

#### **Winger soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Drainageways on lake plains; flats on lake plains; rims of depressions on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 12 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap—0 to 7 inches; silty clay loam  
 Ak—7 to 22 inches; silt loam  
 Bkg—22 to 27 inches; silt loam  
 Cg1—27 to 31 inches; silt loam  
 2Cg2—31 to 80 inches; loam

#### **Major Uses of the Map Unit**

- Cropland

#### **J51A—Bearden-Quam, depressional, complex, 0 to 2 percent slopes**

##### **Component Description**

##### **Bearden and similar soils**

*Extent:* 50 to 70 percent of the unit  
*Geomorphic setting:* Drainageways on lake plains; flats on lake plains; rims of depressions on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April)  
*Deepest depth to wet zone:* 5.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap,A—0 to 16 inches; silty clay loam  
 Bk—16 to 37 inches; silt loam  
 Cg—37 to 80 inches; stratified silt loam to silty clay loam

#### **Quam, depressional, and similar soils**

*Extent:* 20 to 40 percent of the unit  
*Geomorphic setting:* Depressions on lake plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 11.4 inches  
*Content of organic matter in the upper 10 inches:* 10.5 percent  
*Typical profile:*  
 Ap,A—0 to 28 inches; silty clay loam  
 Bg—28 to 48 inches; silty clay loam  
 2Cg—48 to 80 inches; silty clay loam

#### **Rondell soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Knolls on lake plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10 inches  
*Content of organic matter in the upper 10 inches:* 4.2 percent  
*Typical profile:*  
 Ap—0 to 9 inches; silty clay loam  
 Bk—9 to 30 inches; silty clay loam  
 C—30 to 80 inches; silty clay loam

#### **Winger soils**

*Extent:* 0 to 5 percent of the unit  
*Geomorphic setting:* Rims of depressions on lake plains; drainageways on lake plains; flats on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 12 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap—0 to 7 inches; silty clay loam  
 Ak—7 to 22 inches; silt loam  
 Bkg—22 to 27 inches; silt loam  
 Cg1—27 to 31 inches; silt loam  
 2Cg2—31 to 80 inches; loam

#### **Major Uses of the Map Unit**

- Cropland

#### **J52A—Rondell silty clay loam, 1 to 3 percent slopes**

##### **Component Description**

##### **Rondell and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Knolls on lake plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet  
 (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10  
 inches  
*Content of organic matter in the upper 10 inches:* 4.2  
 percent  
*Typical profile:*  
 Ap—0 to 9 inches; silty clay loam  
 Bk—9 to 30 inches; silty clay loam  
 C—30 to 80 inches; silty clay loam

### **Zell soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Hills on lake plains  
*Position on the landform:* Shoulders and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60  
 inches)  
*Drainage class:* Well drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.1  
 inches  
*Content of organic matter in the upper 10 inches:* 2.5  
 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silt loam  
 Bk—10 to 43 inches; silt loam  
 C—43 to 80 inches; silt loam

### **Bearden soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Drainageways on lake plains; flats  
 on lake plains; rims of depressions on lake plains  
*Slope range:* 1 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60  
 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April)  
*Deepest depth to wet zone:* 5.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5  
 inches

*Content of organic matter in the upper 10 inches:* 5  
 percent  
*Typical profile:*  
 Ap,A—0 to 16 inches; silty clay loam  
 Bk—16 to 37 inches; silt loam  
 Cg—37 to 80 inches; stratified silt loam to silty  
 clay loam

### **Major Uses of the Map Unit**

- Cropland

## **J53A—Ortonville loam, 1 to 3 percent slopes**

### **Component Description**

#### **Ortonville and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Knolls on moraines  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60  
 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet  
 (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9.4  
 inches  
*Content of organic matter in the upper 10 inches:* 4.8  
 percent  
*Typical profile:*  
 Ap—0 to 8 inches; loam  
 Bk—8 to 24 inches; stratified sandy loam to loam  
 to silt loam  
 C—24 to 80 inches; stratified sandy loam to loam  
 to silt loam

#### **Well drained soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Knolls on moraines  
*Slope range:* 2 to 4 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60  
 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet  
 (January, February, July, August, September)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.6 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 13 inches; loam

Bk—13 to 38 inches; stratified sandy loam to loam to silt loam

C—38 to 80 inches; stratified sandy loam to loam to silt loam

### **Vallers soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Drainageways on moraines; flats on moraines; rims of depressions on moraines

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 14 inches; clay loam

Bkg—14 to 38 inches; loam

Cg—38 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J54A—Marysland loam, depressional, 0 to 1 percent slopes**

### **Component Description**

#### **Marysland, depressional, and similar soils**

*Extent:* 85 to 95 percent of the unit

*Geomorphic setting:* Depressions on outwash plains

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 1.8 feet (August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 6.3 inches

*Content of organic matter in the upper 10 inches:* 8 percent

*Typical profile:*

Ap,Ak—0 to 19 inches; loam

Bkg—19 to 23 inches; sandy loam

2Cg—23 to 80 inches; sand

### **Marysland soils that are not ponded**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Drainageways on outwash plains; rims of depressions on outwash plains; flats on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Outwash

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 2 feet (August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 6.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap—0 to 9 inches; loam

Ak—9 to 12 inches; loam

Bkg—12 to 27 inches; loam

2Cg—27 to 80 inches; sand

### **Major Uses of the Map Unit**

- Cropland

## **J55A—Sedgeville loam, channeled, 0 to 2 percent slopes, occasionally flooded**

### **Component Description**

#### **Sedgeville and similar soils**

*Extent:* 85 to 95 percent of the unit

*Geomorphic setting:* Flats on flood plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Alluvium  
*Months in which flooding does not occur:* January, February, September, October, November, December  
*Highest frequency of flooding:* Occasional (March, April, May, June, July, August)  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 8.4 inches  
*Content of organic matter in the upper 10 inches:* 7.7 percent  
*Typical profile:*  
 A—0 to 8 inches; loam  
 Bg—8 to 34 inches; coarse sandy loam  
 2Cg—34 to 80 inches; gravelly loamy coarse sand

#### **Soils that are frequently flooded**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats on flood plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Alluvium  
*Months in which flooding does not occur:* January, February, September, October, November, December  
*Highest frequency of flooding:* Frequent (March, April, May, June, July, August)  
*Shallowest depth to wet zone:* At the surface (March, April, May)  
*Deepest depth to wet zone:* 1.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9.7 inches  
*Content of organic matter in the upper 10 inches:* 8 percent  
*Typical profile:*  
 A1,A2—0 to 34 inches; loam  
 2Cg—34 to 80 inches; sand

#### **Major Uses of the Map Unit**

- Pasture and wildlife habitat

### **J56A—Winger-Balaton-Parnell, depressional, complex, 0 to 3 percent slopes**

#### **Component Description**

#### **Winger and similar soils**

*Extent:* 30 to 50 percent of the unit  
*Geomorphic setting:* Rims of depressions on lake plains; flats on lake plains; drainageways on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 12 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap—0 to 7 inches; silty clay loam  
 Ak—7 to 22 inches; silt loam  
 Bkg—22 to 27 inches; silt loam  
 Cg1—27 to 31 inches; silt loam  
 2Cg2—31 to 80 inches; loam

#### **Balaton and similar soils**

*Extent:* 20 to 40 percent of the unit  
*Geomorphic setting:* Knolls on lake plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.7 inches  
*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 13 inches; loam  
 ABk,Bk—13 to 31 inches; loam  
 C—31 to 80 inches; loam

**Parnell, depressional, and similar soils**

*Extent:* 10 to 30 percent of the unit  
*Geomorphic setting:* Depressions on lake plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 8 percent  
*Typical profile:*  
 A1,A2—0 to 22 inches; silty clay loam  
 Btg—22 to 55 inches; silty clay  
 BCg—55 to 80 inches; silty clay loam

**Colvin soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Rims of depressions on lake plains; flats on lake plains; drainageways on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.5 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; silty clay loam

Bk—10 to 25 inches; silt loam  
 Cg—25 to 80 inches; stratified silt loam to silty clay loam

**Vallers soils**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Rims of depressions on lake plains; flats on lake plains; drainageways on lake plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap,A—0 to 14 inches; clay loam  
 Bkg—14 to 38 inches; loam  
 Cg—38 to 80 inches; loam

**Major Uses of the Map Unit**

- Cropland

**J57A—Balaton loam, 1 to 3 percent slopes****Component Description****Balaton and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Knolls on till plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.7 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 13 inches; loam

ABk,Bk—13 to 31 inches; loam

C—31 to 80 inches; loam

### **Well drained soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Knolls on till plains

*Slope range:* 2 to 4 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 3.9 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap—0 to 10 inches; loam

Bk—10 to 27 inches; loam

C—27 to 80 inches; loam

### **Tara soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Flats and swales on till plains

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Silt loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained

*Parent material:* Lacustrine deposits over till

*Flooding:* None

*Shallowest depth to wet zone:* 1.5 feet (April)

*Deepest depth to wet zone:* 5.9 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.4 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 19 inches; silt loam

Bw—19 to 27 inches; silt loam

2Bk—27 to 33 inches; loam

2C—33 to 80 inches; loam

### **Vallers soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Flats on till plains; drainageways on till plains; rims of depressions on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 14 inches; clay loam

Bkg—14 to 38 inches; loam

Cg—38 to 80 inches; loam

### **Major Uses of the Map Unit**

- Cropland

## **J58B—Torning-Egeland complex, 2 to 6 percent slopes**

### **Component Description**

#### **Torning and similar soils**

*Extent:* 35 to 55 percent of the unit

*Geomorphic setting:* Hills on outwash plains

*Position on the landform:* Shoulders and summits

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Fine sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Outwash

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.2 inches

*Content of organic matter in the upper 10 inches:* 1.2 percent

*Typical profile:*

Ap—0 to 8 inches; fine sandy loam

Bk—8 to 30 inches; fine sandy loam

C—30 to 80 inches; fine sand

**Egeland and similar soils**

*Extent:* 30 to 50 percent of the unit  
*Geomorphic setting:* Hills on outwash plains  
*Position on the landform:* Summits and backslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.4 inches  
*Content of organic matter in the upper 10 inches:* 2.6 percent  
*Typical profile:*  
 Ap—0 to 8 inches; sandy loam  
 Bw1,Bw2—8 to 30 inches; sandy loam  
 Bw3—30 to 35 inches; loamy sand  
 Bk—35 to 48 inches; loamy fine sand  
 C—48 to 80 inches; loamy fine sand

**Clontarf soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Sandy loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.3 feet (April)  
*Deepest depth to wet zone:* 3 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.5 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; sandy loam  
 Bw—15 to 25 inches; sandy loam  
 2C—25 to 80 inches; sand

**Sverdrup soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Hills on outwash plains  
*Position on the landform:* Summits, shoulders, and backslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Sandy loam

*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 4.6 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap,A—0 to 12 inches; sandy loam  
 Bw—12 to 26 inches; sandy loam  
 2C—26 to 80 inches; sand

**Major Uses of the Map Unit**

- Cropland

**J59A—Urness mucky silty clay loam, sandy substratum, ponded, 0 to 1 percent slopes****Component Description****Urness, sandy substratum, and similar soils**

*Extent:* 80 to 95 percent of the unit  
*Geomorphic setting:* Depressions on outwash plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Mucky silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Depth to wet zone:* At the surface all year  
*Shallowest ponding:* 0.5 foot (August)  
*Deepest ponding:* 3 feet (March, April, May)  
*Available water capacity to a depth of 60 inches:* 12 inches  
*Content of organic matter in the upper 10 inches:* 15 percent  
*Typical profile:*  
 A1,A2—0 to 34 inches; mucky silty clay loam  
 Cg—34 to 66 inches; mucky silty clay loam  
 2Cg—66 to 80 inches; sand

**Marysland soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats on outwash plains; rims of depressions on outwash plains; drainageways on outwash plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6.6 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap—0 to 9 inches; loam  
 Ak—9 to 12 inches; loam  
 Bkg—12 to 27 inches; loam  
 2Cg—27 to 80 inches; sand

#### **Major Uses of the Map Unit**

- Wildlife habitat

### **J60B—Hattie-Audubon complex, 1 to 4 percent slopes**

#### **Component Description**

##### **Hattie and similar soils**

*Extent:* 35 to 55 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Summits and shoulders  
*Slope range:* 1 to 4 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April, May)  
*Deepest depth to wet zone:* 5.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 8.8 inches  
*Content of organic matter in the upper 10 inches:* 3 percent  
*Typical profile:*  
 Ap—0 to 8 inches; silty clay  
 Bwss—8 to 15 inches; silty clay  
 Bkss—15 to 22 inches; silty clay  
 C—22 to 80 inches; silty clay

##### **Audubon and similar soils**

*Extent:* 35 to 55 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Summits and backslopes

*Slope range:* 1 to 4 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April, May)  
*Deepest depth to wet zone:* 5.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9.5 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap,A—0 to 14 inches; silty clay  
 Bkss—14 to 36 inches; silty clay  
 C—36 to 80 inches; silty clay

##### **Foxlake soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Drainageways and flats on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April, May)  
*Deepest depth to wet zone:* 2.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.2 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap—0 to 23 inches; silty clay  
 Bkg—23 to 39 inches; silty clay  
 Cg—39 to 80 inches; silty clay

#### **Major Uses of the Map Unit**

- Cropland

### **J60C—Hattie-Audubon complex, 4 to 10 percent slopes**

#### **Component Description**

##### **Hattie and similar soils**

*Extent:* 50 to 70 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Summits and shoulders

*Slope range:* 4 to 10 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April, May)  
*Deepest depth to wet zone:* 5.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 8.8 inches  
*Content of organic matter in the upper 10 inches:* 3.3 percent  
*Typical profile:*  
 Ap—0 to 9 inches; silty clay  
 Bkss—9 to 19 inches; silty clay  
 C—19 to 80 inches; silty clay

#### **Audubon and similar soils**

*Extent:* 20 to 40 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Backslopes and summits  
*Slope range:* 4 to 10 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April, May)  
*Deepest depth to wet zone:* 5.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9.3 inches  
*Content of organic matter in the upper 10 inches:* 3.4 percent  
*Typical profile:*  
 Ap—0 to 8 inches; silty clay  
 Bkss—8 to 34 inches; silty clay  
 C—34 to 80 inches; silty clay

#### **Foxlake soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats and drainageways on till plains  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April, May)

*Deepest depth to wet zone:* 2.6 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.2 inches  
*Content of organic matter in the upper 10 inches:* 4 percent  
*Typical profile:*  
 Ap—0 to 23 inches; silty clay  
 Bkg—23 to 39 inches; silty clay  
 Cg—39 to 80 inches; silty clay

#### **Major Uses of the Map Unit**

- Cropland

### **J61A—Svea loam, 1 to 3 percent slopes, bouldery**

#### **Component Description**

#### **Svea, bouldery, and similar soils**

*Extent:* 80 to 95 percent of the unit  
*Geomorphic setting:* Flats and swales on terraces  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.1 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 A1,A2—0 to 10 inches; loam  
 Bw—10 to 23 inches; clay loam  
 Bk—23 to 60 inches; loam  
 C—60 to 80 inches; loam

#### **Vallers soils that are bouldery**

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Rims of depressions on terraces; flats on terraces; drainageways on terraces  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till

*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.5 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 A1,A2—0 to 12 inches; clay loam  
 Bkg—12 to 60 inches; loam  
 Cg—60 to 80 inches; loam

### **Parnell soils in depressions**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Depressions on terraces  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 8 percent  
*Typical profile:*  
 A1,A2—0 to 22 inches; silty clay loam  
 Btg—22 to 55 inches; silty clay  
 BCg—55 to 80 inches; silty clay loam

### **Major Uses of the Map Unit**

- Pasture and wildlife habitat

## **J62C—Buse-Barnes complex, 2 to 12 percent slopes, very bouldery**

### **Component Description**

#### **Buse, very bouldery, and similar soils**

*Extent:* 35 to 55 percent of the unit  
*Geomorphic setting:* Hills on terraces  
*Position on the landform:* Summits and shoulders  
*Slope range:* 2 to 12 percent  
*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.4 inches  
*Content of organic matter in the upper 10 inches:* 1.7 percent  
*Typical profile:*  
 A—0 to 8 inches; loam  
 Bk—8 to 24 inches; loam  
 BC,C—24 to 80 inches; loam

#### **Barnes, very bouldery, and similar soils**

*Extent:* 20 to 30 percent of the unit  
*Geomorphic setting:* Hills on terraces  
*Position on the landform:* Summits and backslopes  
*Slope range:* 6 to 12 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.8 inches  
*Content of organic matter in the upper 10 inches:* 3.5 percent  
*Typical profile:*  
 A1,A2—0 to 15 inches; loam  
 Bw—15 to 22 inches; loam  
 Bk—22 to 50 inches; loam  
 C—50 to 80 inches; loam

#### **Hokans soils**

*Extent:* 10 to 20 percent of the unit  
*Geomorphic setting:* Hills on terraces  
*Position on the landform:* Summits and backslopes  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.8 inches

*Content of organic matter in the upper 10 inches:* 4.5 percent

*Typical profile:*

Ap,A—0 to 15 inches; loam

Bw—15 to 22 inches; loam

Bk—22 to 40 inches; loam

C—40 to 80 inches; loam

### **Svea soils that are bouldery**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Swales and flats on terraces

*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 2.5 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.1 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

A1,A2—0 to 10 inches; loam

Bw—10 to 23 inches; clay loam

Bk—23 to 60 inches; loam

C—60 to 80 inches; loam

### **Darnen soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Hills on terraces

*Position on the landform:* Footslopes

*Slope range:* 2 to 6 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Colluvium

*Flooding:* None

*Shallowest depth to wet zone:* 3.9 feet (April)

*Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.4 inches

*Content of organic matter in the upper 10 inches:* 6.5 percent

*Typical profile:*

Ap,A—0 to 24 inches; loam

AB,Bw1—24 to 34 inches; loam

Bw2—34 to 80 inches; loam

### **Major Uses of the Map Unit**

- Pasture and wildlife habitat

## **J62F—Buse-Barnes complex, 12 to 40 percent slopes, very bouldery**

### **Component Description**

#### **Buse, very bouldery, and similar soils**

*Extent:* 40 to 60 percent of the unit

*Geomorphic setting:* Hills on terraces

*Position on the landform:* Backslopes, shoulders, and summits

*Slope range:* 12 to 40 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.4 inches

*Content of organic matter in the upper 10 inches:* 1.5 percent

*Typical profile:*

A—0 to 7 inches; loam

Bk—7 to 44 inches; loam

C—44 to 80 inches; loam

#### **Barnes, very bouldery, and similar soils**

*Extent:* 30 to 50 percent of the unit

*Geomorphic setting:* Hills on terraces

*Position on the landform:* Summits and backslopes

*Slope range:* 12 to 40 percent

*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Parent material:* Till

*Flooding:* None

*Depth to wet zone:* More than 6.7 feet all year

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10.6 inches

*Content of organic matter in the upper 10 inches:* 3.5 percent

*Typical profile:*

- A—0 to 12 inches; loam
- Bw—12 to 19 inches; loam
- Bk—19 to 33 inches; loam
- C—33 to 80 inches; loam

**Darnen soils**

- Extent:* 5 to 15 percent of the unit
- Geomorphic setting:* Hills on terraces
- Position on the landform:* Footslopes
- Slope range:* 2 to 6 percent
- Texture of the surface layer:* Loam
- Depth to restrictive feature:* Very deep (more than 60 inches)
- Drainage class:* Well drained
- Parent material:* Colluvium
- Flooding:* None
- Shallowest depth to wet zone:* 3.9 feet (April)
- Deepest depth to wet zone:* More than 6.7 feet (January, February, July, August, September)
- Ponding:* None
- Available water capacity to a depth of 60 inches:* 11.4 inches
- Content of organic matter in the upper 10 inches:* 6.5 percent
- Typical profile:*
  - Ap,A—0 to 24 inches; loam
  - AB,Bw1—24 to 34 inches; loam
  - Bw2—34 to 80 inches; loam

**Major Uses of the Map Unit**

- Pasture and wildlife habitat

**J63A—Ortonville-Vallers-Parnell, depressional, complex, 0 to 3 percent slopes****Component Description****Ortonville and similar soils**

- Extent:* 35 to 55 percent of the unit
- Geomorphic setting:* Knolls on moraines
- Slope range:* 1 to 3 percent
- Texture of the surface layer:* Loam
- Depth to restrictive feature:* Very deep (more than 60 inches)
- Drainage class:* Moderately well drained
- Parent material:* Till
- Flooding:* None
- Shallowest depth to wet zone:* 2.5 feet (April)
- Deepest depth to wet zone:* More than 6.7 feet (February, August)
- Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.4 inches

*Content of organic matter in the upper 10 inches:* 4.8 percent

*Typical profile:*

- Ap—0 to 8 inches; loam
- Bk—8 to 24 inches; stratified sandy loam to loam to silt loam
- C—24 to 80 inches; stratified sandy loam to loam to silt loam

**Vallers and similar soils**

- Extent:* 25 to 45 percent of the unit
- Geomorphic setting:* Rims of depressions on moraines; flats on moraines; drainageways on moraines
- Slope range:* 0 to 2 percent
- Texture of the surface layer:* Loam
- Depth to restrictive feature:* Very deep (more than 60 inches)
- Drainage class:* Poorly drained
- Parent material:* Till
- Flooding:* None
- Shallowest depth to wet zone:* 0.5 foot (April)
- Deepest depth to wet zone:* 3.3 feet (February, August)
- Ponding:* None
- Available water capacity to a depth of 60 inches:* 10.8 inches
- Content of organic matter in the upper 10 inches:* 6.5 percent
- Typical profile:*
  - Ap—0 to 10 inches; loam
  - Bkg—10 to 29 inches; loam
  - Cg—29 to 80 inches; loam

**Parnell, depressional, and similar soils**

- Extent:* 15 to 25 percent of the unit
- Geomorphic setting:* Depressions on moraines
- Slope range:* 0 to 1 percent
- Texture of the surface layer:* Silty clay loam
- Depth to restrictive feature:* Very deep (more than 60 inches)
- Drainage class:* Very poorly drained
- Parent material:* Till
- Flooding:* None
- Shallowest depth to wet zone:* At the surface (March, April)
- Deepest depth to wet zone:* 2 feet (February, August)
- Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December
- Deepest ponding:* 1 foot (April)
- Available water capacity to a depth of 60 inches:* 10.4 inches

*Content of organic matter in the upper 10 inches:* 8 percent

*Typical profile:*

A1,A2—0 to 22 inches; silty clay loam

Btg—22 to 55 inches; silty clay

BCg—55 to 80 inches; silty clay loam

### **Major Uses of the Map Unit**

- Cropland

## **J64A—Quam silty clay loam, 0 to 2 percent slopes**

### **Component Description**

#### **Quam and similar soils**

*Extent:* 80 to 95 percent of the unit

*Geomorphic setting:* Drainageways and flats on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.5 inches

*Content of organic matter in the upper 10 inches:* 10.2 percent

*Typical profile:*

Ap—0 to 9 inches; silty clay loam

A—9 to 60 inches; silty clay loam

Bg—60 to 68 inches; silty clay loam

2Cg—68 to 80 inches; loam

#### **Colvin soils**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Rims of depressions on till plains; flats on till plains; drainageways on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April)

*Deepest depth to wet zone:* 3.3 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 11.5 inches

*Content of organic matter in the upper 10 inches:* 5 percent

*Typical profile:*

Ap—0 to 10 inches; silty clay loam

Bk—10 to 25 inches; silt loam

Cg—25 to 80 inches; stratified silt loam to silty clay loam

### **Quam soils in depressions**

*Extent:* 0 to 10 percent of the unit

*Geomorphic setting:* Depressions on till plains

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Lacustrine deposits

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 2 feet (February, August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 11.5 inches

*Content of organic matter in the upper 10 inches:* 10.5 percent

*Typical profile:*

Ap—0 to 10 inches; silty clay loam

A1,A2—10 to 45 inches; silty clay loam

Cg—45 to 80 inches; silty clay loam

### **Major Uses of the Map Unit**

- Cropland

## **J65A—Shakopee silty clay, 0 to 2 percent slopes**

### **Component Description**

#### **Shakopee and similar soils**

*Extent:* 80 to 95 percent of the unit

*Geomorphic setting:* Drainageways on outwash plains; flats on outwash plains; rims of depressions on outwash plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained  
*Parent material:* Lacustrine deposits over outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 2 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 5.5 inches  
*Content of organic matter in the upper 10 inches:* 5.8 percent  
*Typical profile:*  
 Ap—0 to 9 inches; silty clay  
 A—9 to 15 inches; silty clay  
 Bkg—15 to 38 inches; silty clay  
 2C—38 to 80 inches; sand

### Soils in depressions

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Depressions on outwash plains  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silty clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Lacustrine deposits over outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 5.7 inches  
*Content of organic matter in the upper 10 inches:* 5.8 percent  
*Typical profile:*  
 Ap—0 to 9 inches; silty clay  
 Ak—9 to 34 inches; silty clay  
 Bkg—34 to 45 inches; silty clay  
 2Cg—45 to 80 inches; sand

### Major Uses of the Map Unit

- Cropland

## J66A—Emrick loam, 1 to 3 percent slopes

### Component Description

#### Emrick and similar soils

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Swales and flats on moraines  
*Slope range:* 1 to 3 percent

*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.3 inches  
*Content of organic matter in the upper 10 inches:* 5.5 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; loam  
 Bw—15 to 25 inches; loam  
 Bk—25 to 36 inches; stratified sandy loam to loam to silt loam  
 C—36 to 80 inches; stratified sandy loam to loam to silt loam

### Lakepark soils

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats and drainageways on moraines  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11 inches  
*Content of organic matter in the upper 10 inches:* 5.9 percent  
*Typical profile:*  
 Ap—0 to 8 inches; loam  
 A—8 to 27 inches; loam  
 Bg—27 to 41 inches; loam  
 Cg—41 to 80 inches; loam

### Heimdahl soils

*Extent:* 1 to 10 percent of the unit  
*Geomorphic setting:* Hills on moraines  
*Position on the landform:* Backslopes and summits  
*Slope range:* 2 to 6 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Well drained  
*Parent material:* Till  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 9.7 inches  
*Content of organic matter in the upper 10 inches:* 4.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; loam  
 Bw—10 to 22 inches; loam  
 Bk—22 to 42 inches; stratified sandy loam to loam to silt loam  
 C—42 to 80 inches; stratified sandy loam to loam to silt loam

#### **Major Uses of the Map Unit**

- Cropland

### **J67A—Fordtown loam, 1 to 3 percent slopes**

#### **Component Description**

##### **Fordtown and similar soils**

*Extent:* 75 to 95 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 3.9 feet (April)  
*Deepest depth to wet zone:* 4.9 feet (August, September)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 8.1 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap,A—0 to 30 inches; loam  
 Bw—30 to 36 inches; loam  
 2C—36 to 80 inches; gravelly loamy sand

##### **Renshaw soils**

*Extent:* 5 to 10 percent of the unit  
*Geomorphic setting:* Flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat excessively drained  
*Parent material:* Outwash  
*Flooding:* None  
*Depth to wet zone:* More than 6.7 feet all year  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 4.8 inches  
*Content of organic matter in the upper 10 inches:* 2.3 percent  
*Typical profile:*  
 Ap—0 to 7 inches; loam  
 Bw—7 to 15 inches; loam  
 2Bk—15 to 20 inches; gravelly loamy sand  
 2C—20 to 60 inches; gravelly loamy sand

#### **Spottswood soils**

*Extent:* 0 to 10 percent of the unit  
*Geomorphic setting:* Swales and flats on outwash plains  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Outwash  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.3 feet (April)  
*Deepest depth to wet zone:* 3 feet (August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 6 inches  
*Content of organic matter in the upper 10 inches:* 5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; loam  
 Bw—10 to 26 inches; loam  
 2C—26 to 80 inches; gravelly loamy sand

#### **Major Uses of the Map Unit**

- Cropland

### **J68A—Kerkhoven-Friberg, depressional, complex, 0 to 2 percent slopes**

#### **Component Description**

##### **Kerkhoven and similar soils**

*Extent:* 45 to 65 percent of the unit  
*Geomorphic setting:* Drainageways and flats on moraines  
*Slope range:* 0 to 2 percent  
*Texture of the surface layer:* Loam

*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 0.5 foot (April)  
*Deepest depth to wet zone:* 3.3 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 11.2 inches  
*Content of organic matter in the upper 10 inches:* 6.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; loam  
 A—10 to 35 inches; loam  
 Bg—35 to 53 inches; loam  
 Bkg—53 to 63 inches; loam  
 Cg—63 to 80 inches; loam

#### **Friberg, depressional, and similar soils**

*Extent:* 25 to 45 percent of the unit  
*Geomorphic setting:* Depressions on moraines  
*Slope range:* 0 to 1 percent  
*Texture of the surface layer:* Silt loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Very poorly drained  
*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* At the surface (March, April)  
*Deepest depth to wet zone:* 2 feet (February, August)  
*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December  
*Deepest ponding:* 1 foot (April)  
*Available water capacity to a depth of 60 inches:* 11.3 inches  
*Content of organic matter in the upper 10 inches:* 7.5 percent  
*Typical profile:*  
 Ap,A—0 to 23 inches; silt loam  
 Btg—23 to 47 inches; silty clay loam  
 Bkg—47 to 60 inches; loam  
 Cg—60 to 80 inches; loam

#### **Emrick soils**

*Extent:* 5 to 15 percent of the unit  
*Geomorphic setting:* Flats and swales on moraines  
*Slope range:* 1 to 3 percent  
*Texture of the surface layer:* Loam  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained

*Parent material:* Till  
*Flooding:* None  
*Shallowest depth to wet zone:* 2.5 feet (April)  
*Deepest depth to wet zone:* More than 6.7 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10.3 inches  
*Content of organic matter in the upper 10 inches:* 5.5 percent  
*Typical profile:*  
 Ap,A—0 to 15 inches; loam  
 Bw—15 to 25 inches; loam  
 Bk—25 to 36 inches; stratified sandy loam to loam to silt loam  
 C—36 to 80 inches; stratified sandy loam to loam to silt loam

#### **Major Uses of the Map Unit**

- Cropland, hayland, and pasture

### **L33B—Kandiyohi clay, 2 to 5 percent slopes**

#### **Component Description**

##### **Kandiyohi and similar soils**

*Extent:* 80 to 90 percent of the unit  
*Geomorphic setting:* Hills on till plains  
*Position on the landform:* Backslopes, shoulders, and summits  
*Slope range:* 2 to 5 percent  
*Texture of the surface layer:* Clay  
*Depth to restrictive feature:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Parent material:* Lacustrine deposits over till  
*Flooding:* None  
*Shallowest depth to wet zone:* 1.5 feet (April, May)  
*Deepest depth to wet zone:* 4.9 feet (February, August)  
*Ponding:* None  
*Available water capacity to a depth of 60 inches:* 10 inches  
*Content of organic matter in the upper 10 inches:* 5.5 percent  
*Typical profile:*  
 Ap—0 to 10 inches; clay  
 Bw—10 to 23 inches; clay  
 Bkg—23 to 64 inches; clay loam  
 BCg—64 to 80 inches; clay loam

##### **Cosmos soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Drainageways and flats on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April, May)

*Deepest depth to wet zone:* 2.6 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.5 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 15 inches; silty clay

Btg—15 to 30 inches; silty clay

Btkg—30 to 36 inches; silty clay

2Bkg—36 to 80 inches; clay loam

#### **Okoboji soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Depressions on till plains

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 2 feet (February, August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 10.8 inches

*Content of organic matter in the upper 10 inches:* 8 percent

*Typical profile:*

Ap..A3—0 to 32 inches; silty clay loam

Bg—32 to 56 inches; silty clay loam

Cg—56 to 80 inches; silty clay loam

#### **Major Uses of the Map Unit**

- Cropland

### **L34A—Cosmos silty clay, 0 to 2 percent slopes**

#### **Component Description**

##### **Cosmos and similar soils**

*Extent:* 75 to 95 percent of the unit

*Geomorphic setting:* Drainageways and flats on till plains

*Slope range:* 0 to 2 percent

*Texture of the surface layer:* Silty clay

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* 0.5 foot (April, May)

*Deepest depth to wet zone:* 2.6 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 9.5 inches

*Content of organic matter in the upper 10 inches:* 6 percent

*Typical profile:*

Ap,A—0 to 15 inches; silty clay

Btg—15 to 30 inches; silty clay

Btkg—30 to 36 inches; silty clay

2Bkg—36 to 80 inches; clay loam

##### **Kandiyohi soils**

*Extent:* 5 to 15 percent of the unit

*Geomorphic setting:* Hills on till plains

*Position on the landform:* Backslopes, shoulders, and summits

*Slope range:* 1 to 5 percent

*Texture of the surface layer:* Clay

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained

*Parent material:* Lacustrine deposits over till

*Flooding:* None

*Shallowest depth to wet zone:* 1.5 feet (April, May)

*Deepest depth to wet zone:* 4.9 feet (February, August)

*Ponding:* None

*Available water capacity to a depth of 60 inches:* 10 inches

*Content of organic matter in the upper 10 inches:* 5.5 percent

*Typical profile:*

Ap—0 to 10 inches; clay

Bw—10 to 23 inches; clay

Bkg—23 to 64 inches; clay loam  
BCg—64 to 80 inches; clay loam

### **Okoboji soils**

*Extent:* 1 to 10 percent of the unit

*Geomorphic setting:* Depressions on till plains

*Slope range:* 0 to 1 percent

*Texture of the surface layer:* Silty clay loam

*Depth to restrictive feature:* Very deep (more than 60 inches)

*Drainage class:* Very poorly drained

*Parent material:* Till

*Flooding:* None

*Shallowest depth to wet zone:* At the surface (March, April)

*Deepest depth to wet zone:* 2 feet (February, August)

*Months in which ponding does not occur:* January, February, May, June, July, August, September, October, November, December

*Deepest ponding:* 1 foot (April)

*Available water capacity to a depth of 60 inches:* 10.8 inches

*Content of organic matter in the upper 10 inches:* 8 percent

*Typical profile:*

Ap..A3—0 to 32 inches; silty clay loam

Bg—32 to 56 inches; silty clay loam

Cg—56 to 80 inches; silty clay loam

### **Major Uses of the Map Unit**

- Cropland

### **M-W—Water, miscellaneous**

- This map unit consists of constructed bodies of water. These areas include sewage lagoons, stormwater sediment basins with a permanent pool of water, and aquaculture ponds.

### **W—Water**

- This map unit consists of naturally occurring bodies of water or water that has been impounded by structures in natural waterways.

Table 2.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
GP	Pits, gravel-Udipsamments complex-----	1,512	0.3
J1A	Parnell silty clay loam, depressional, 0 to 1 percent slopes-----	4,550	0.9
J2A	La Prairie loam, 0 to 2 percent slopes, occasionally flooded-----	417	*
J3A	Arveson sandy loam, 0 to 2 percent slopes-----	18,985	3.9
J4A	Rockwell loam, 0 to 2 percent slopes-----	2,353	0.5
J5A	Fossum sandy loam, 0 to 2 percent slopes-----	3,415	0.7
J6A	McDonaldsville silty clay, 0 to 2 percent slopes-----	1,874	0.4
J7A	Sverdrup sandy loam, 0 to 2 percent slopes-----	1,590	0.3
J7B	Sverdrup sandy loam, 2 to 6 percent slopes-----	5,079	1.1
J8A	Egeland sandy loam, 0 to 2 percent slopes-----	6,409	1.3
J8B	Egeland sandy loam, 2 to 6 percent slopes-----	4,577	1.0
J9A	Estelline silt loam, 0 to 2 percent slopes-----	1,640	0.3
J10A	Sinai silty clay, 0 to 2 percent slopes-----	202	*
J10B	Sinai silty clay, 2 to 6 percent slopes-----	243	*
J11A	Vallers clay loam, 0 to 2 percent slopes-----	3,516	0.7
J12A	Marysland loam, 0 to 2 percent slopes-----	30,783	6.4
J13A	Oldham silty clay loam, depressional, 0 to 1 percent slopes-----	2,123	0.4
J14F	Esmond loam, 18 to 40 percent slopes-----	893	0.2
J15B	Eckman silt loam, 2 to 6 percent slopes-----	878	0.2
J16A	Friberg silt loam, depressional, 0 to 2 percent slopes-----	33	*
J17A	Quam silty clay loam, depressional, 0 to 1 percent slopes-----	6,336	1.3
J18A	Malachy sandy loam, 1 to 3 percent slopes-----	4,009	0.8
J19A	Hecla loamy fine sand, 1 to 3 percent slopes-----	8,816	1.8
J20A	Clontarf sandy loam, 1 to 3 percent slopes-----	3,583	0.7
J21A	Hamar loamy fine sand, 0 to 2 percent slopes-----	2,606	0.5
J22A	Renshaw loam, 0 to 3 percent slopes-----	15,776	3.3
J23A	Lamoure silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	3,631	0.8
J24F	Buse loam, 18 to 40 percent slopes-----	806	0.2
J25A	Rauville silty clay loam, 0 to 1 percent slopes, frequently flooded-----	6,907	1.4
J26B	Darnen loam, 2 to 6 percent slopes-----	469	*
J27A	Hantho silt loam, 1 to 3 percent slopes-----	4,639	1.0
J28A	Vallers clay loam, 0 to 2 percent slopes, bouldery-----	1,897	0.4
J29A	Cathro muck, depressional, 0 to 1 percent slopes-----	67	*
J30A	Tara silt loam, 1 to 3 percent slopes-----	8,956	1.9
J31B	Arvilla-Sandberg complex, 2 to 6 percent slopes-----	5,148	1.1
J32A	Bigstone silty clay loam, depressional, 0 to 1 percent slopes-----	5,554	1.2
J33D2	Sisseton-Heimdal complex, 12 to 20 percent slopes, eroded-----	2,936	0.6
J34B	Byrne-Buse complex, 2 to 6 percent slopes-----	12,418	2.6
J35B	Hokans-Buse complex, 2 to 6 percent slopes-----	10,337	2.1
J36C2	Buse-Barnes complex, 6 to 12 percent slopes, eroded-----	2,057	0.4
J37D2	Langhei-Barnes complex, 12 to 20 percent slopes, eroded-----	882	0.2
J38B	Zell-Eckman complex, 2 to 6 percent slopes-----	1,216	0.3
J38C2	Zell-Eckman complex, 6 to 12 percent slopes, eroded-----	326	*
J39A	Udorthents, shallow (sanitary landfill)-----	15	*
J40A	Foxlake silty clay, 0 to 2 percent slopes-----	642	0.1
J41A	Urness mucky silty clay loam, depressional, 0 to 1 percent slopes-----	3,631	0.8
J42C	Sandberg-Arvilla complex, 6 to 12 percent slopes-----	1,263	0.3
J43A	Quam, Cathro, and Urness soils, ponded, 0 to 1 percent slopes-----	4,575	1.0
J44B	Esmond-Heimdal complex, 2 to 6 percent slopes-----	30,564	6.4
J44C2	Esmond-Heimdal complex, 6 to 12 percent slopes, eroded-----	8,582	1.8
J45F	Sandberg sandy loam, 12 to 40 percent slopes-----	336	*
J46B	Byrne silt loam, 2 to 4 percent slopes-----	567	0.1
J47A	Swenoda sandy loam, moderately wet, 1 to 3 percent slopes-----	1,636	0.3
J48A	Bigstone and Parnell soils, ponded, 0 to 1 percent slopes-----	4,735	1.0
J49A	Lakepark-Parnell, depressional, complex, 0 to 2 percent slopes-----	9,833	2.0
J50A	Balaton-Tara complex, 1 to 3 percent slopes-----	30,831	6.4
J51A	Bearden-Quam, depressional, complex, 0 to 2 percent slopes-----	58,847	12.2
J52A	Rondell silty clay loam, 1 to 3 percent slopes-----	13,509	2.8
J53A	Ortonville loam, 1 to 3 percent slopes-----	1,908	0.4
J54A	Marysland loam, depressional, 0 to 1 percent slopes-----	7,111	1.5

See footnote at end of table.

Table 2.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
J55A	Sedgeville loam, channeled, 0 to 2 percent slopes, occasionally flooded--	3,419	0.7
J56A	Winger-Balaton-Parnell, depressionnal, complex, 0 to 3 percent slopes-----	48,255	10.0
J57A	Balaton loam, 1 to 3 percent slopes-----	9,754	2.0
J58B	Torning-Egeland complex, 2 to 6 percent slopes-----	1,345	0.3
J59A	Urness mucky silty clay loam, sandy substratum, ponded, 0 to 1 percent slopes-----	4,133	0.9
J60B	Hattie-Audubon complex, 1 to 4 percent slopes-----	528	0.1
J60C	Hattie-Audubon complex, 4 to 10 percent slopes-----	70	*
J61A	Svea loam, 1 to 3 percent slopes, bouldery-----	1,462	0.3
J62C	Buse-Barnes complex, 2 to 12 percent slopes, very bouldery-----	1,267	0.3
J62F	Buse-Barnes complex, 12 to 40 percent slopes, very bouldery-----	171	*
J63A	Ortonville-Vallers-Parnell, depressionnal, complex, 0 to 3 percent slopes	4,683	1.0
J64A	Quam silty clay loam, 0 to 2 percent slopes-----	6,201	1.3
J65A	Shakopee silty clay, 0 to 2 percent slopes-----	2,686	0.6
J66A	Emrick loam, 1 to 3 percent slopes-----	5,811	1.2
J67A	Fordtown loam, 1 to 3 percent slopes-----	4,143	0.9
J68A	Kerkhoven-Friberg, depressionnal, complex, 0 to 2 percent slopes-----	1,848	0.4
L33B	Kandiyohi clay, 2 to 5 percent slopes-----	12	*
L34A	Cosmos silty clay, 0 to 2 percent slopes-----	10	*
M-W	Water, miscellaneous-----	20	*
W	Water-----	6,353	1.3
	Total-----	481,200	100.0

\* Less than 0.1 percent.

# Use and Management of the Soils

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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 sites for buildings, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

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

## Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables

identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

## Rating Class Terms

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

## Numerical Ratings

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

## Crops and Pasture

General management needed for crops and for hay and pasture is suggested in this section. The estimated yields of the main crops and hay and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described. Planners of management systems for individual fields or farms should consider obtaining specific information from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

## Cropland Management Considerations

The management concerns affecting the use of the soil map units in the survey area for crops are shown in table 3. The main concerns in managing nonirrigated cropland are conserving moisture, controlling wind erosion and water erosion, and maintaining soil fertility.

*Conserving moisture* consists primarily of reducing the evaporation and runoff rates and increasing the water infiltration rate. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Generally, a combination of several practices is needed to control *wind erosion* and *water erosion*. Conservation tillage, stripcropping, field windbreaks, contour farming, conservation cropping systems, crop residue management, terraces, diversions, and grassed waterways help to prevent excessive soil loss.

Measures that are effective in maintaining *soil fertility* include applying fertilizer, both organic and inorganic, including manure; incorporating crop residue or green manure crops into the soil; and using proper crop rotations. Controlling erosion helps to prevent the loss of organic matter and plant nutrients and thus helps to maintain productivity, although the level of fertility can be reduced even in areas where erosion is controlled. All soils used for nonirrigated crops respond well to applications of fertilizer.

Some of the considerations shown in the table cannot be easily overcome. These are channels, flooding, gullies, and ponding.

Additional considerations are as follows:

*Lime content, limited available water capacity, limited content of organic matter, potential poor tillth and compaction, and restricted permeability.*—These limitations can be minimized by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems. Also, crops may respond well to additions of phosphate fertilizer to soils that have a high content of lime.

*Potential for ground-water contamination.*—The proper use of nutrients and pesticides can reduce the risk of ground-water contamination.

*Potential for surface-water contamination.*—The risk of surface-water contamination can be reduced by the proper use of nutrients and pesticides and by conservation farming practices that reduce the runoff rate.

*Surface crusting.*—This limitation retards seedling development after periods of heavy rainfall.

*Surface rock fragments.*—This limitation causes rapid wear of tillage equipment. It cannot be easily overcome.

*Surface stones.*—Stones or boulders on or near the surface can hinder normal tillage unless they are removed.

*Salt content.*—In areas where this is a limitation, only salt-tolerant crops should be grown.

On irrigated soils the main management concerns are efficient water use, nutrient management, control of erosion, pest and weed control, and timely planting and harvesting for a successful crop. An irrigation system that provides optimum control and distribution of water at minimum cost is needed. Overirrigation wastes water, leaches plant nutrients, and causes erosion. Also, it can increase wetness and soil salinity.

### Explanation of Criteria

*Acid soil.*—The pH is less than 6.1.

*Channeled.*—The word “channeled” is included in the map unit name.

*Dense layer.*—The bulk density is 1.80 g/cc or greater within the soil profile.

*Depth to rock.*—The depth to bedrock is less than 40 inches.

*Eroded.*—The word “eroded” is included in the map unit name.

*Excessive permeability.*—Saturated hydraulic conductivity is 42 micrometers per second or more within the soil profile.

*Flooding.*—Flooding is occasional, frequent, or very frequent.

*Gullied.*—The word “gullied” is included in the map unit name.

*High content of organic matter.*—The surface layer has more than 20 percent organic matter.

*Lime content.*—The pH is 7.4 or more in the surface layer, or the wind erodibility group is 4L.

*Limited available water capacity.*—The available water capacity calculated to a depth of 60 inches or to a root-limiting layer is 6 inches or less.

*Limited content of organic matter.*—The content of organic matter is 2 percent or less in the surface layer.

*Ponding.*—Ponding duration is assigned to the soil. Water is above the surface.

*Potential poor tillth and compaction.*—The content of clay is 27 percent or more in the surface layer.

*Potential for ground-water contamination (by nutrients or pesticides).*—The depth to a zone in which the soil moisture status is wet is 4 feet or less, the saturated hydraulic conductivity of any layer is more than 42 micrometers per second, or the depth to bedrock is less than 60 inches.

*Potential for surface-water contamination (by*

nutrients or pesticides).—The soil is occasionally, frequently, or very frequently flooded, is subject to ponding, is assigned to hydrologic group C or D and has a slope of more than 2 percent, is assigned to hydrologic group A and has a slope of more than 6 percent, or is assigned to hydrologic group B, has a slope of 3 percent or more, and has a K factor of more than 0.17.

*Previously eroded.*—The word “eroded” is included in the map unit name.

*Restricted permeability.*—Saturated hydraulic conductivity is less than 0.42 micrometer per second within the soil profile.

*Salt content.*—The electrical conductivity is 4 or more in the surface layer or 8 or more within a depth of 30 inches.

*Slope (equipment limitation).*—The slope is more than 15 percent.

*Surface crusting.*—The content of clay is 27 percent or more and the content of organic matter is 2 percent or less in the surface layer.

*Surface rock fragments (equipment limitation).*—The terms describing the texture of the surface layer include any rock fragment modifier, except for gravelly, channery, stony, very stony, extremely stony, bouldery, very bouldery, and extremely bouldery.

*Surface stones (equipment limitation).*—The word “stony” or “bouldery” is included in the description of the surface layer, or 0.01 percent or more of the surface is covered by boulders.

*Water erosion.*—Either the slope is 6 percent or more, or the slope is more than 3 percent and less than 6 percent and the surface layer is not sandy.

*Wet soil moisture status.*—A zone in which the soil moisture status is wet is within 2.5 feet of the surface.

*Wind erosion.*—The wind erodibility group is 1, 2, 3, or 4L.

Hydrologic groups are described under the heading “Water Features.” Erosion factors (e.g., K factor) and wind erodibility groups are described under the heading “Physical and Chemical Properties.”

## Crop Yield Estimates

The average yields per acre that can be expected of the principal crops and hay and pasture plants under a high level of management are shown in table 4. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of the soils in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension

agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

## Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not take into account major and generally expensive 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 woodland or for engineering purposes.

In the capability system, soils generally are grouped at three levels—capability class, subclass, and unit (USDA, 1961). These categories indicate the degree and kinds of limitations affecting mechanized farming systems that produce the more commonly grown field crops, such as corn, small grain, cotton, hay, and field-grown vegetables. Only class and subclass are used in this survey.

*Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use.

If properly managed, soils in classes 1, 2, 3, and 4 are suitable for the mechanized production of commonly grown field crops and for pasture and woodland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class 1 to class 4. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes 5, 6, and 7 are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class 5 to class 7.

Areas in class 8 are generally not suitable for crops, pasture, or woodland without a level of management that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

*Capability subclasses* identify the dominant kind of limitation in the class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class 1 because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use mainly to pasture, woodland, wildlife habitat, or recreation.

The capability classification of the soils in the survey area is given in table 4.

## Prime Farmland

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

well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

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

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

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

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

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

The map units in the survey area that meet the requirements for prime farmland are listed in table 5.

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

## Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not originally support trees. Knowledge of how trees perform on such land can be gained only by observing and recording the performance of trees that have been planted and have survived. Many popular windbreak species are not indigenous to the areas in which they are planted.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters, a tree or shrub may grow well or grow poorly, depending on the characteristics of the soil. Each tree or shrub has definable potential heights in a given physiographic area and under a given climate. Accurate definitions of potential heights are necessary when a windbreak is planned and designed.

Table 6 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in this 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 local offices of the Natural Resources Conservation Service or the Cooperative Extension Service or from a nursery.

## Windbreak Suitability Groups

Windbreak suitability groups consist of soils in which the kinds and degrees of the hazards and limitations that affect the survival and growth of trees and shrubs in windbreaks are about the same. The windbreak suitability groups assigned to the soils in the survey area are listed in table 7. Descriptions of the groups are provided in the "Field Office Technical Guide," which is available in local offices of the Natural Resources Conservation Service.

## Recreation

The soils of the survey area are rated in tables 8a and 8b 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 the tables can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, 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 zone in which the soil moisture status is wet, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a zone in which the soil moisture status is wet, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Playgrounds* require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a zone in which the soil moisture status is wet, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Paths and trails* for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a zone in which the soil moisture status is wet, ponding, flooding, slope, and texture of the surface layer.

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

*Golf fairways* are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a zone in which the soil moisture status is wet; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a zone in which the soil moisture status is wet, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

## Wildlife Habitat

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. If food, cover, or water is missing, inadequate, or inaccessible, wildlife will be scarce or will not inhabit the area.

If the soils have potential for habitat development, wildlife habitat can be created or improved by planting appropriate vegetation, properly managing the existing plant cover, and fostering the natural establishment of desirable plants.

In table 9, 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 used by wildlife. Examples are corn, soybeans, wheat, oats, and barley.

*Grasses and legumes* are domestic perennial grasses and herbaceous legumes planted for wildlife food and cover. Examples are bromegrass, timothy, orchardgrass, clover, alfalfa, and wheatgrass.

*Wild herbaceous plants* are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Examples are bluestems, indiagrass, blueberry, goldenrod, lambsquarters, dandelions, blackberry, ragweed, and wheatgrass.

The major soil properties affecting the growth of grain and forage crops and wild herbaceous plants are depth of the root zone, texture of the surface layer, the amount of water available to plants, wetness, salinity,

and flooding. The length of the growing season also is important.

*Hardwood trees* and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage that wildlife eat. Examples are oak, poplar, hickory, birch, maple, green ash, willow, and American elm.

*Coniferous plants* are cone-bearing trees, shrubs, or ground cover that provide habitat or supply food in the form of browse, seed, or fruit-like cones. Examples are pine, spruce, cedar, and tamarack.

The major soil properties affecting the growth of hardwood and coniferous trees and shrubs are depth of the root zone, the amount of water available to plants, and wetness.

*Wetland plants* are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Wetland plants produce food or cover for wetland wildlife. Examples of these plants are smartweeds, wild millet, rushes, sedges, bulrushes, wild rice, arrowhead, waterplantain, cattail, prairie cordgrass, bluejoint grass, asters, and beggarticks.

The major soil properties affecting wetland plants are texture of the surface layer, wetness, acidity or alkalinity, and slope.

*Shallow water areas* have an average depth of less than 5 feet. They are useful as habitat for some wildlife species. They are naturally wet areas or are created by dams, levees, or water-control measures in marshes or streams. Examples are waterfowl feeding areas, wildlife watering developments, beaver ponds, and other wildlife ponds.

The major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability.

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, and shrubs. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include Hungarian partridge, ring-necked pheasant, bobwhite quail, sharp-tailed grouse, meadowlark, field sparrow, killdeer, cottontail rabbit, and red fox.

*Habitat for woodland wildlife* consists of areas of hardwoods or conifers or a mixture of these and associated grasses, legumes, and wild herbaceous plants. The wildlife attracted to this habitat include wild turkey, ruffed grouse, thrushes, woodpeckers, owls, tree squirrels, porcupine, raccoon, and white-tailed deer.

*Habitat for wetland wildlife* consists of open, marshy or swampy shallow water areas, bogs, or flood plains that support water-tolerant plants. The wildlife attracted to this habitat include ducks, geese, herons, bitterns, rails, kingfishers, muskrat, otter, mink, and beaver.

## Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

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

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

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

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a zone in which the soil moisture status is wet, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, linear extensibility, 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 and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

## Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 10a and 10b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development.

*Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected.

*Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected.

*Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They

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

*Dwellings* are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a zone in which the soil moisture status is wet, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a zone in which the soil moisture status is wet, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Small commercial buildings* are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a zone in which the soil moisture status is wet, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a zone in which the soil moisture status is wet, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties

that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a zone in which the soil moisture status is wet, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a zone in which the soil moisture status is wet, and ponding.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to a zone in which the soil moisture status is wet, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to a zone in which the soil moisture status is wet, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a zone in which the soil moisture status is wet; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a zone in which the soil moisture status is wet, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

## Sanitary Facilities

Tables 11a and 11b show the degree and kind of soil limitations that affect 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).

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered

daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the

surface of the soils in the steeper areas and cause difficult seepage problems.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

## Construction Materials

Tables 12a and 12b give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

*Sand* and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 12a, 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.

The soils are rated *good*, *fair*, or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

*Reclamation material* is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In table 12b, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a zone in which the soil moisture status is wet, and slope. How well the soil performs in place after it has been compacted and

drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

*Topsoil* is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a zone in which the soil moisture status is wet, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a zone in which the soil moisture status is wet, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

## Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses.

*Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected.

*Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected.

*Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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

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

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

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

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

*Aquifer-fed excavated ponds* are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent zone in which the soil moisture status is wet. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent zone in which the soil moisture status is wet, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Table 3.--Cropland Management Considerations

(See text for a description of the considerations listed in this table)

Map symbol and component name	Pct. of map unit	Cropland management considerations
GP:		
Pits, gravel-----	80	Not applicable
Udipsamments-----	20	Not applicable
J1A:		
Parnell, depressional-----	90	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Colvin-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J2A:		
La Prairie-----	90	Flooding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Lamoure-----	10	Flooding Lime content Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
J3A:		
Arveson-----	80	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Marysland-----	10	Excessive permeability Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Marysland, depressional-----	5	Excessive permeability Lime content Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J3A: Malachy-----	5	Excessive permeability Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
J4A: Rockwell-----	90	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Arveson-----	10	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
J5A: Fossum-----	85	Excessive permeability Lime content Limited available water capacity Potential for ground-water contamination Wet soil moisture status Wind erosion
Arveson-----	10	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Fossum, depressional-----	3	Excessive permeability Lime content Limited available water capacity Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
Hecla-----	2	Limited available water capacity Limited content of organic matter Potential for ground-water contamination Wet soil moisture status Wind erosion
J6A: McDonaldsville-----	90	Excessive permeability Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Wet soil moisture status
Somewhat poorly drained soils	10	Excessive permeability Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Wet soil moisture status

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J7A:		
Sverdrup-----	85	Excessive permeability Limited available water capacity Potential for ground-water contamination Wind erosion
Arveson-----	5	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Clontarf-----	5	Excessive permeability Potential for ground-water contamination Wet soil moisture status Wind erosion
Egeland-----	5	Wind erosion
J7B:		
Sverdrup-----	90	Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Clontarf-----	5	Excessive permeability Potential for ground-water contamination Wet soil moisture status Wind erosion
Egeland-----	5	Potential for surface-water contamination Water erosion Wind erosion
J8A:		
Egeland-----	80	Wind erosion
Clontarf-----	10	Excessive permeability Potential for ground-water contamination Wet soil moisture status Wind erosion
Sverdrup-----	5	Excessive permeability Limited available water capacity Potential for ground-water contamination Wind erosion
Arveson-----	3	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Hantho-----	2	Potential for ground-water contamination Wet soil moisture status
J8B:		
Egeland-----	80	Potential for surface-water contamination Water erosion Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J8B: Clontarf-----	8	Excessive permeability Potential for ground-water contamination Wet soil moisture status Wind erosion
Sverdrup-----	5	Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Torning-----	3	Lime content Limited content of organic matter Potential for surface-water contamination Water erosion Wind erosion
Eckman-----	2	Potential for surface-water contamination Water erosion
Egeland, eroded-----	2	Potential for surface-water contamination Water erosion Wind erosion
J9A: Estelline-----	90	Excessive permeability Potential for ground-water contamination
Soils that have a thin surface layer-----	10	Excessive permeability Potential for ground-water contamination
J10A: Sinai-----	90	Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status
Fulda-----	10	Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status
J10B: Sinai-----	90	Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Water erosion Wet soil moisture status
Fulda-----	10	Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status
J11A: Vallers-----	85	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J11A: Parnell, depressional-----	10	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Balaton-----	5	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
J12A: Marysland-----	85	Excessive permeability Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Arveson-----	10	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Marysland, depressional-----	3	Excessive permeability Lime content Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
Malachy-----	2	Excessive permeability Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
J13A: Oldham-----	90	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Wet soil moisture status
Colvin-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J14F: Esmond-----	85	Slope Lime content Potential for surface-water contamination Water erosion Wind erosion
Emrick-----	10	Potential for ground-water contamination Potential for surface-water contamination Water erosion Wet soil moisture status
Heimdal-----	5	Slope Potential for surface-water contamination Water erosion
J15B: Eckman-----	80	Potential for surface-water contamination Water erosion
Eckman, eroded-----	5	Potential for surface-water contamination Water erosion
Egeland-----	5	Potential for surface-water contamination Water erosion Wind erosion
Hantho-----	5	Potential for ground-water contamination Wet soil moisture status
Zell-----	5	Lime content Potential for surface-water contamination Water erosion Wind erosion
J16A: Friberg, depressional-----	90	Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Kerkhoven-----	10	Potential for ground-water contamination Wet soil moisture status
J17A: Quam, depressional-----	90	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Colvin-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J18A: Malachy-----	85	Excessive permeability Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Arveson-----	5	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Well drained soils-----	5	Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Clontarf-----	5	Excessive permeability Potential for ground-water contamination Wet soil moisture status Wind erosion
J19A: Hecla-----	80	Limited available water capacity Limited content of organic matter Potential for ground-water contamination Wet soil moisture status Wind erosion
Clontarf-----	10	Excessive permeability Potential for ground-water contamination Wet soil moisture status Wind erosion
Sverdrup-----	5	Excessive permeability Limited available water capacity Potential for ground-water contamination Wind erosion
Hamar-----	3	Limited available water capacity Potential for ground-water contamination Wet soil moisture status Wind erosion
Malachy-----	2	Excessive permeability Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
J20A: Clontarf-----	80	Potential for ground-water contamination Wet soil moisture status Wind erosion
Hecla-----	10	Limited available water capacity Limited content of organic matter Potential for ground-water contamination Wet soil moisture status Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J20A: Arveson-----	5	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Well drained soils-----	5	Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
J21A: Hamar-----	85	Limited available water capacity Potential for ground-water contamination Wet soil moisture status Wind erosion
Less sandy soils-----	8	Excessive permeability Potential for ground-water contamination Wet soil moisture status Wind erosion
Arveson-----	4	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Hecla-----	3	Limited available water capacity Limited content of organic matter Potential for ground-water contamination Wet soil moisture status Wind erosion
J22A: Renshaw-----	85	Excessive permeability Limited available water capacity Potential for ground-water contamination
Fordtown-----	10	Excessive permeability Potential for ground-water contamination
Arvilla-----	3	Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Fordville-----	2	Excessive permeability Limited available water capacity Potential for ground-water contamination
J23A: Lamoure-----	85	Flooding Lime content Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J23A: Rauville-----	10	Flooding Lime content Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
La Prairie-----	5	Flooding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
J24F: Buse-----	85	Slope Lime content Potential for surface-water contamination Water erosion Wind erosion
Darnen-----	10	Potential for ground-water contamination Potential for surface-water contamination Water erosion
Barnes-----	5	Slope Potential for surface-water contamination Water erosion
J25A: Rauville-----	90	Flooding Lime content Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
Lamoure-----	10	Flooding Lime content Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
J26B: Darnen-----	90	Potential for ground-water contamination Potential for surface-water contamination Water erosion
Hokans-----	5	Potential for ground-water contamination Potential for surface-water contamination Water erosion
Lakepark-----	5	Potential for ground-water contamination Wet soil moisture status
J27A: Hantho-----	85	Potential for ground-water contamination Wet soil moisture status

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J27A: Eckman-----	5	Potential for surface-water contamination Water erosion
Quam-----	5	Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status
Rondell-----	3	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Tara-----	2	Potential for ground-water contamination Wet soil moisture status
J28A: Vallers, bouldery-----	90	Lime content Potential poor tilth and compaction Potential for ground-water contamination Surface stones Wet soil moisture status Wind erosion
Parnell, depression-----	10	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
J29A: Cathro-----	90	High content of organic matter Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
Colvin-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J30A: Tara-----	90	Potential for ground-water contamination Wet soil moisture status
Balaton-----	5	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Byrne-----	3	Potential for ground-water contamination Potential for surface-water contamination Water erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J30A: Quam-----	2	Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status
J31B: Arvilla-----	45	Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Sandberg-----	30	Excessive permeability Limited available water capacity Potential for ground-water contamination Wind erosion
Renshaw-----	10	Excessive permeability Limited available water capacity Potential for ground-water contamination
Sioux-----	10	Excessive permeability Limited available water capacity Potential for ground-water contamination Water erosion
Fordtown-----	5	Excessive permeability Potential for ground-water contamination
J32A: Bigstone-----	80	Lime content Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
Urness-----	10	Lime content Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
Colvin-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J33D2: Sisseton, eroded-----	70	Slope Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
Heimdahl, eroded-----	10	Slope Potential for surface-water contamination Previously eroded Water erosion
Esmond, eroded-----	10	Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
Heimdahl, slightly eroded----	5	Slope Potential for surface-water contamination Previously eroded Water erosion
Emrick-----	5	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Wet soil moisture status
J34B: Byrne-----	45	Potential for ground-water contamination Potential for surface-water contamination Water erosion
Buse-----	35	Lime content Potential for surface-water contamination Water erosion Wind erosion
Buse, eroded-----	10	Lime content Potential for surface-water contamination Water erosion Wind erosion
Hokans-----	5	Potential for ground-water contamination Potential for surface-water contamination Water erosion
Tara-----	5	Potential for ground-water contamination Wet soil moisture status
J35B: Hokans-----	45	Potential for ground-water contamination Potential for surface-water contamination Water erosion
Buse-----	30	Lime content Potential for surface-water contamination Water erosion Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J35B:		
Barnes-----	10	Potential for surface-water contamination Water erosion
Buse, eroded-----	10	Lime content Potential for surface-water contamination Water erosion Wind erosion
Svea-----	5	Potential for ground-water contamination Wet soil moisture status
J36C2:		
Buse, eroded-----	45	Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
Barnes, eroded-----	20	Potential for surface-water contamination Previously eroded Water erosion
Barnes, slightly eroded-----	10	Potential for surface-water contamination Previously eroded Water erosion
Buse, slightly eroded-----	10	Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
Darnen-----	10	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
Langhei, eroded-----	5	Slope Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
J37D2:		
Langhei, eroded-----	60	Slope Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
Barnes, eroded-----	15	Slope Potential for surface-water contamination Previously eroded Water erosion
Buse, eroded-----	10	Slope Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J37D2: Darnen-----	10	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
Barnes, slightly eroded-----	5	Slope Potential for surface-water contamination Previously eroded Water erosion
J38B: Zell-----	41	Lime content Potential for surface-water contamination Water erosion Wind erosion
Eckman-----	39	Potential for surface-water contamination Water erosion
Zell, eroded-----	10	Lime content Potential for surface-water contamination Water erosion Wind erosion
Egeland-----	5	Potential for surface-water contamination Water erosion Wind erosion
Hantho-----	5	Potential for ground-water contamination Wet soil moisture status
J38C2: Zell, eroded-----	45	Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
Eckman, eroded-----	20	Potential for surface-water contamination Previously eroded Water erosion
Zell, slightly eroded-----	15	Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
Hantho-----	10	Potential for ground-water contamination Previously eroded Wet soil moisture status
Eckman, slightly eroded-----	5	Potential for surface-water contamination Previously eroded Water erosion
Egeland-----	5	Potential for surface-water contamination Previously eroded Water erosion Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J39A: Udorthents-----	100	Not applicable
J40A: Foxlake-----	85	Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Wet soil moisture status
Audubon-----	5	Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Water erosion Wet soil moisture status
Calcareous soils-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Wet soil moisture status
Soils in depressions-----	5	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Wet soil moisture status
J41A: Urness-----	80	Lime content Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
Bigstone-----	10	Lime content Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
Colvin-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J42C: Sandberg-----	60	Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J42C: Arvilla-----	30	Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Everts-----	10	Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Water erosion
J43A: Quam, depressional-----	30	Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Cathro-----	30	High content of organic matter Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Urness-----	30	Lime content Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Colvin-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J44B: Esmond-----	45	Lime content Potential for surface-water contamination Water erosion Wind erosion
Heimdahl-----	40	Potential for surface-water contamination Water erosion
Esmond, eroded-----	10	Lime content Potential for surface-water contamination Water erosion Wind erosion
Emrick-----	5	Potential for ground-water contamination Wet soil moisture status

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J44C2:		
Esmond, eroded-----	40	Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
Heimdal, eroded-----	25	Potential for surface-water contamination Previously eroded Water erosion
Esmond, slightly eroded-----	15	Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
Heimdal, slightly eroded-----	10	Potential for surface-water contamination Previously eroded Water erosion
Emrick-----	5	Potential for ground-water contamination Previously eroded Wet soil moisture status
Sisseton, eroded-----	5	Slope Lime content Potential for surface-water contamination Previously eroded Water erosion Wind erosion
J45F:		
Sandberg-----	80	Slope Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Everts-----	10	Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Water erosion
Arvilla-----	5	Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Sioux-----	5	Slope Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J46B: Byrne-----	85	Potential for ground-water contamination Potential for surface-water contamination Water erosion
Hokans-----	7	Potential for ground-water contamination Potential for surface-water contamination Water erosion
Buse-----	5	Lime content Potential for surface-water contamination Water erosion Wind erosion
Quam-----	3	Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status
J47A: Swenoda-----	85	Potential for ground-water contamination Wet soil moisture status Wind erosion
Clontarf-----	10	Excessive permeability Potential for ground-water contamination Wet soil moisture status Wind erosion
Egeland-----	5	Wind erosion
J48A: Bigstone-----	40	Lime content Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Parnell-----	40	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Colvin-----	10	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallars-----	10	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J49A: Lakepark-----	50	Potential for ground-water contamination Wet soil moisture status

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J49A: Parnell, depressional-----	35	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Emrick-----	8	Potential for ground-water contamination Wet soil moisture status
Vallers-----	7	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J50A: Balaton-----	45	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Tara-----	35	Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status
McIntosh-----	10	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Well drained soils-----	5	Lime content Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Winger-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J51A: Bearden-----	60	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Quam, depressional-----	30	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Rondell-----	7	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J51A: Winger-----	3	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J52A: Rondell-----	85	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Zell-----	9	Lime content Potential for surface-water contamination Water erosion Wind erosion
Bearden-----	6	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J53A: Ortonville-----	85	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Well drained soils-----	10	Lime content Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J54A: Marysland, depressionals-----	90	Excessive permeability Lime content Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status Wind erosion
Marysland soils that are not ponded-----	10	Excessive permeability Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J55A: Sedgeville-----	90	Flooding Channeled Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Soils that are frequently flooded-----	10	Flooding Channeled Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
J56A: Winger-----	40	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Balaton-----	30	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Parnell, depressional-----	20	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Colvin-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J57A: Balaton-----	85	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Well drained soils-----	5	Lime content Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Tara-----	5	Potential for ground-water contamination Wet soil moisture status

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J57A: Vallers-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
J58B: Torning-----	45	Lime content Limited content of organic matter Potential for surface-water contamination Water erosion Wind erosion
Egeland-----	40	Potential for surface-water contamination Water erosion Wind erosion
Clontarf-----	10	Excessive permeability Potential for ground-water contamination Wet soil moisture status Wind erosion
Sverdrup-----	5	Excessive permeability Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
J59A: Urness, sandy substratum----	90	Excessive permeability Lime content Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Marysland-----	10	Excessive permeability Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
J60B: Hattie-----	46	Lime content Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Water erosion Wet soil moisture status
Audubon-----	44	Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Water erosion Wet soil moisture status

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J60B: Foxlake-----	10	Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Wet soil moisture status
J60C: Hattie-----	60	Lime content Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Water erosion Wet soil moisture status
Audubon-----	30	Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Water erosion Wet soil moisture status
Foxlake-----	10	Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Wet soil moisture status
J61A: Svea, bouldery-----	90	Potential for ground-water contamination Surface stones Wet soil moisture status
Vallers, bouldery-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Surface stones Wet soil moisture status Wind erosion
Parnell, depressional-----	5	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
J62C: Buse, very bouldery-----	45	Lime content Potential for surface-water contamination Surface stones Water erosion Wind erosion
Barnes, very bouldery-----	25	Potential for surface-water contamination Surface stones Water erosion
Hokans-----	15	Potential for ground-water contamination Potential for surface-water contamination Surface stones Water erosion

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J62C: Svea, bouldery-----	10	Potential for ground-water contamination Surface stones Wet soil moisture status
Darnen-----	5	Potential for ground-water contamination Potential for surface-water contamination Water erosion
J62F: Buse, very bouldery-----	50	Slope Lime content Potential for surface-water contamination Surface stones Water erosion Wind erosion
Barnes, very bouldery-----	40	Slope Potential for surface-water contamination Surface stones Water erosion
Darnen-----	10	Potential for ground-water contamination Potential for surface-water contamination Water erosion
J63A: Ortonville-----	45	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Vallers-----	35	Lime content Potential for ground-water contamination Wet soil moisture status Wind erosion
Parnell, depressiona-----	20	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
J64A: Quam-----	90	Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status
Colvin-----	5	Lime content Potential poor tilth and compaction Potential for ground-water contamination Wet soil moisture status Wind erosion
Quam, depressiona-----	5	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
J65A: Shakopee-----	90	Excessive permeability Lime content Limited available water capacity Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Wet soil moisture status
Soils in depressions-----	10	Excessive permeability Lime content Limited available water capacity Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Wet soil moisture status
J66A: Emrick-----	85	Potential for ground-water contamination Wet soil moisture status
Lakepark-----	10	Potential for ground-water contamination Wet soil moisture status
Heimdahl-----	5	Potential for surface-water contamination Water erosion
J67A: Fordtown-----	85	Excessive permeability Potential for ground-water contamination
Renshaw-----	8	Excessive permeability Limited available water capacity Potential for ground-water contamination
Spottswood-----	7	Excessive permeability Limited available water capacity Potential for ground-water contamination Wet soil moisture status
J68A: Kerkhoven-----	55	Potential for ground-water contamination Wet soil moisture status
Friberg, depression-----	35	Ponding Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
Emrick-----	10	Potential for ground-water contamination Wet soil moisture status
L33B: Kandiyohi-----	85	Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Water erosion Wet soil moisture status

Table 3.--Cropland Management Considerations--Continued

Map symbol and component name	Pct. of map unit	Cropland management considerations
L33B: Cosmos-----	10	Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Wet soil moisture status
Okoboji-----	5	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
L34A: Cosmos-----	85	Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Wet soil moisture status
Kandiyohi-----	10	Potential poor tilth and compaction Potential for ground-water contamination Restricted permeability Water erosion Wet soil moisture status
Okoboji-----	5	Ponding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Wet soil moisture status
M-W: Water, miscellaneous-----	100	Not applicable
W: Water-----	100	Not applicable

Table 4.--Land Capability and Yields per Acre of Crops

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and component name	Pct. of map unit	Land capability	Bromegrass-	Corn	Oats	Soybeans	Spring wheat
			alfalfa hay	Bu	Bu	Bu	Bu
			Tons				
GP:							
Pits, gravel-----	80	---	---	---	---	---	---
Udipsamments-----	20	---	---	---	---	---	---
J1A:							
Parnell, depressional---	90	3w	3.4	124	72	37	50
Colvin-----	5	2w	4.1	136	79	43	54
Vallers-----	5	2w	4.1	134	78	40	53
J2A:							
La Prairie-----	90	1	4.8	145	84	46	58
Lamoure-----	10	2w	3.6	120	70	36	48
J3A:							
Arveson-----	80	2w	3.3	105	71	32	49
Marysland-----	10	2w	3.3	110	72	33	50
Marysland, depressional	5	3w	2.6	90	66	30	46
Malachy-----	5	2s	3.4	105	71	32	49
J4A:							
Rockwell-----	90	2w	3.4	115	73	35	51
Arveson-----	10	2w	3.3	105	71	32	49
J5A:							
Fossum-----	85	3w	2.8	90	68	28	46
Arveson-----	10	2w	3.3	105	71	32	49
Fossum, depressional---	3	4w	2.6	88	66	27	45
Hecla-----	2	4s	2.9	90	68	28	46
J6A:							
McDonaldsville-----	90	2w	2.8	90	68	28	46
Somewhat poorly drained soils-----	10	1	2.9	92	69	29	47
J7A:							
Sverdrup-----	85	3s	2.5	80	65	26	44
Arveson-----	5	2w	3.3	105	71	32	49
Clontarf-----	5	3s	3.4	110	72	33	50
Egeland-----	5	3e	3.2	100	70	31	48
J7B:							
Sverdrup-----	90	3e	2.5	80	65	26	44

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Bromegrass-	Corn	Oats	Soybeans	Spring wheat
			alfalfa hay	Bu	Bu	Bu	Bu
			Tons				
J7B:							
Clontarf-----	5	3s	3.4	105	71	32	49
Egeland-----	5	3e	3.2	100	70	31	48
J8A:							
Egeland-----	80	3s	3.2	100	70	31	48
Clontarf-----	10	3s	3.4	110	72	33	50
Sverdrup-----	5	3s	2.5	80	65	26	44
Arveson-----	3	2w	3.3	105	71	32	49
Hantho-----	2	1	4.8	145	84	46	58
J8B:							
Egeland-----	80	3e	3.2	100	70	31	48
Clontarf-----	8	3s	3.4	110	72	33	50
Sverdrup-----	5	3e	2.5	80	65	26	44
Torning-----	3	3e	2.9	92	68	29	46
Eckman-----	2	2e	4.8	143	83	46	57
Egeland, eroded-----	2	3e	3.2	98	69	31	47
J9A:							
Estelline-----	90	2s	3.0	95	69	30	47
Soils that have a thin surface layer-----	10	2s	3.0	95	69	30	47
J10A:							
Sinai-----	90	2s	3.9	125	76	37	52
Fulda-----	10	2w	3.6	120	71	39	48
J10B:							
Sinai-----	90	3e	3.9	125	76	37	52
Fulda-----	10	2w	3.6	120	70	36	48
J11A:							
Vallers-----	85	2w	4.1	134	78	40	53
Parnell, depressional---	10	3w	3.4	124	72	37	50
Balaton-----	5	2s	4.8	144	84	46	58
J12A:							
Marysland-----	85	2w	3.3	110	72	33	50
Arveson-----	10	2w	3.3	105	71	32	49
Marysland, depressional	3	3w	2.6	90	66	30	46
Malachy-----	2	2s	3.4	105	71	32	49

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Bromegrass-	Corn	Oats	Soybeans	Spring wheat
			alfalfa hay				
			Tons	Bu	Bu	Bu	Bu
<b>J13A:</b>							
Oldham-----	90	3w	3.4	124	72	37	50
Colvin-----	5	2w	4.1	136	79	43	54
Vallars-----	5	2w	4.1	134	78	40	53
<b>J14F:</b>							
Esmond-----	85	7e	---	---	---	---	---
Emrick-----	10	2e	---	---	---	---	---
Heimdal-----	5	4e	---	---	---	---	---
<b>J15B:</b>							
Eckman-----	80	2e	4.8	143	83	46	57
Eckman, eroded-----	5	2e	4.8	141	82	46	56
Egeland-----	5	3e	3.2	100	70	31	48
Hantho-----	5	1	4.8	145	84	46	58
Zell-----	5	3e	4.6	140	82	44	56
<b>J16A:</b>							
Friberg, depressional----	90	3w	3.3	120	70	35	48
Kerkhoven-----	10	2w	4.0	130	75	39	52
<b>J17A:</b>							
Quam, depressional-----	90	3w	3.6	126	73	38	51
Colvin-----	5	2w	4.1	136	79	43	54
Vallars-----	5	2w	4.1	134	78	40	53
<b>J18A:</b>							
Malachy-----	85	2s	3.4	105	71	32	49
Arveson-----	5	2w	3.3	105	71	32	49
Well drained soils-----	5	3e	3.4	105	71	32	49
Clontarf-----	5	3s	3.4	110	72	33	50
<b>J19A:</b>							
Hecla-----	80	4s	2.9	90	68	28	46
Clontarf-----	10	3s	3.4	110	72	33	50
Sverdrup-----	5	3s	2.5	80	65	26	44
Hamar-----	3	4w	2.8	90	68	28	46
Malachy-----	2	2s	3.4	105	71	32	49
<b>J20A:</b>							
Clontarf-----	80	3s	3.4	110	72	33	50
Hecla-----	10	4s	2.9	90	68	28	46

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Bromegrass-	Corn	Oats	Soybeans	Spring wheat
			alfalfa hay Tons	Bu	Bu	Bu	Bu
J20A:							
Arveson-----	5	2w	3.3	105	71	32	49
Well drained soils-----	5	3e	3.4	110	72	33	50
J21A:							
Hamar-----	85	4w	2.8	90	68	28	46
Less sandy soils-----	8	2w	3.3	105	71	32	49
Arveson-----	4	2w	3.3	105	71	32	49
Hecla-----	3	4s	2.9	90	68	28	46
J22A:							
Renshaw-----	85	3s	2.6	80	65	25	45
Fordtown-----	10	2s	3.7	105	78	36	53
Arvilla-----	3	3s	2.4	72	60	23	42
Fordville-----	2	2s	3.6	102	75	34	51
J23A:							
Lamoure-----	85	2w	3.6	120	70	36	48
Rauville-----	10	5w	---	---	---	---	---
La Prairie-----	5	1	4.8	145	84	46	58
J24F:							
Buse-----	85	7e	---	---	---	---	---
Darnen-----	10	2e	---	---	---	---	---
Barnes-----	5	4e	---	---	---	---	---
J25A:							
Rauville-----	90	5w	---	---	---	---	---
Lamoure-----	10	2w	---	---	---	---	---
J26B:							
Darnen-----	90	2e	4.8	145	84	46	58
Hokans-----	5	2e	4.8	143	83	46	58
Lakepark-----	5	2w	4.1	140	82	44	56
J27A:							
Hantho-----	85	1	4.8	145	84	46	58
Eckman-----	5	2e	4.8	143	83	46	57
Quam-----	5	2w	4.2	139	80	43	56
Rondell-----	3	2e	4.3	137	80	41	56
Tara-----	2	1	4.8	145	84	46	58

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Brome-grass-alfalfa hay	Corn	Oats	Soybeans	Spring wheat
			Tons	Bu	Bu	Bu	Bu
<b>J28A:</b>							
Vallers, bouldery-----	90	5w	---	---	---	---	---
Parnell, depressional---	10	3w	---	---	---	---	---
<b>J29A:</b>							
Cathro-----	90	4w	3.2	118	68	35	47
Colvin-----	5	2w	4.1	136	79	43	54
Vallers-----	5	2w	4.1	134	78	40	53
<b>J30A:</b>							
Tara-----	90	1	4.8	145	84	46	58
Balaton-----	5	2s	4.8	144	84	46	58
Byrne-----	3	2e	4.8	143	83	46	57
Quam-----	2	2w	4.2	139	80	43	56
<b>J31B:</b>							
Arvilla-----	45	4s	2.4	72	60	23	42
Sandberg-----	30	4s	2.0	60	50	18	34
Renshaw-----	10	4s	2.6	80	65	25	45
Sioux-----	10	6s	1.8	55	45	16	32
Fordtown-----	5	2s	3.7	105	78	36	53
<b>J32A:</b>							
Bigstone-----	80	3w	3.4	124	72	37	50
Urness-----	10	3w	3.2	118	68	35	47
Colvin-----	5	2w	4.1	136	79	43	54
Vallers-----	5	2w	4.1	134	78	40	53
<b>J33D2:</b>							
Sisseton, eroded-----	70	6e	2.9	88	44	28	30
Heimdal, eroded-----	10	4e	3.0	90	45	29	32
Esmond, eroded-----	10	4e	2.9	88	44	28	30
Heimdal, slightly eroded	5	4e	3.0	90	45	29	32
Emrick-----	5	2e	4.6	138	80	43	55
<b>J34B:</b>							
Byrne-----	45	2e	4.8	143	83	46	58
Buse-----	35	2e	4.6	139	81	44	56
Buse, eroded-----	10	2e	4.6	138	80	44	55
Hokans-----	5	2e	4.8	143	83	46	58
Tara-----	5	1	4.8	145	84	46	58

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Brome-grass-	Corn	Oats	Soybeans	Spring wheat
			alfalfa hay	Bu	Bu	Bu	Bu
			Tons				
J35B:							
Hokans-----	45	2e	4.8	143	83	46	58
Buse-----	30	2e	4.6	139	81	44	56
Barnes-----	10	2e	4.8	143	83	46	58
Buse, eroded-----	10	2e	4.6	138	80	44	55
Svea-----	5	1	4.8	145	84	46	58
J36C2:							
Buse, eroded-----	45	3e	3.8	115	67	35	45
Barnes, eroded-----	20	3e	4.0	121	72	38	50
Barnes, slightly eroded	10	3e	4.0	122	73	39	51
Buse, slightly eroded---	10	3e	4.0	122	73	39	51
Darnen-----	10	2e	4.8	145	84	46	58
Langhei, eroded-----	5	4e	3.7	114	66	34	44
J37D2:							
Langhei, eroded-----	60	6e	3.0	90	45	28	30
Barnes, eroded-----	15	4e	3.1	94	48	30	33
Buse, eroded-----	10	4e	3.1	93	47	30	32
Darnen-----	10	2e	4.8	145	84	46	58
Barnes, slightly eroded	5	4e	3.2	95	49	31	34
J38B:							
Zell-----	41	3e	4.6	140	82	44	56
Eckman-----	39	2e	4.9	143	84	47	58
Zell, eroded-----	10	3e	4.5	138	80	42	54
Egeland-----	5	3e	3.2	100	70	31	48
Hantho-----	5	1	4.8	145	84	46	58
J38C2:							
Zell, eroded-----	45	4e	3.6	117	69	37	46
Eckman, eroded-----	20	3e	3.8	120	71	39	48
Zell, slightly eroded---	15	4e	3.7	118	70	38	47
Hantho-----	10	1	4.8	145	84	46	58
Eckman, slightly eroded	5	3e	3.9	122	72	40	50
Egeland-----	5	3e	3.1	95	67	30	45
J39A:							
Udorthents-----	100	---	---	---	---	---	---

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Brome-grass-alfalfa hay	Corn	Oats	Soybeans	Spring wheat
			Tons	Bu	Bu	Bu	Bu
<b>J40A:</b>							
Foxlake-----	85	2w	3.6	120	70	36	48
Audubon-----	5	2e	4.0	127	77	39	54
Calcareous soils-----	5	2w	3.5	119	67	34	47
Soils in depressions----	5	3w	3.4	116	66	32	44
<b>J41A:</b>							
Urness-----	80	3w	3.2	118	68	35	47
Bigstone-----	10	3w	3.4	124	72	37	50
Colvin-----	5	2w	4.1	136	79	43	54
Vallers-----	5	2w	4.1	134	78	40	53
<b>J42C:</b>							
Sandberg-----	60	6s	1.6	52	41	12	28
Arvilla-----	30	4e	2.0	58	49	20	36
Everts-----	10	2e	3.7	105	78	36	53
<b>J43A:</b>							
Quam, depressional-----	30	8w	---	---	---	---	---
Cathro-----	30	8w	---	---	---	---	---
Urness-----	30	8w	---	---	---	---	---
Colvin-----	5	2w	---	---	---	---	---
Vallers-----	5	2w	---	---	---	---	---
<b>J44B:</b>							
Esmond-----	45	3e	4.3	133	77	41	52
Heimdal-----	40	2e	4.5	136	80	43	56
Esmond, eroded-----	10	3e	4.2	132	76	40	53
Emrick-----	5	2e	4.6	138	80	43	55
<b>J44C2:</b>							
Esmond, eroded-----	40	4e	3.6	113	66	34	44
Heimdal, eroded-----	25	3e	3.8	115	68	36	46
Esmond, slightly eroded	15	4e	3.7	114	67	35	45
Heimdal, slightly eroded	10	3e	3.9	117	70	37	48
Emrick-----	5	2e	4.6	138	80	43	55
Sisseton, eroded-----	5	6e	3.5	111	65	33	42
<b>J45F:</b>							
Sandberg-----	80	7e	---	---	---	---	---

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Bromegrass-	Corn	Oats	Soybeans	Spring wheat
			alfalfa hay Tons	Bu	Bu	Bu	Bu
<b>J45F:</b>							
Everts-----	10	2e	---	---	---	---	---
Arvilla-----	5	4e	---	---	---	---	---
Sioux-----	5	7e	---	---	---	---	---
<b>J46B:</b>							
Byrne-----	85	2e	4.8	143	83	46	57
Hokans-----	7	2e	4.8	143	83	46	58
Buse-----	5	2e	4.6	139	81	44	56
Quam-----	3	2w	4.2	139	80	43	56
<b>J47A:</b>							
Swenoda-----	85	2s	3.8	115	70	36	48
Clontarf-----	10	3s	3.4	110	72	33	50
Egeland-----	5	3s	3.2	100	70	31	48
<b>J48A:</b>							
Bigstone-----	40	8w	---	---	---	---	---
Parnell-----	40	8w	---	---	---	---	---
Colvin-----	10	2w	---	---	---	---	---
Vallers-----	10	2w	---	---	---	---	---
<b>J49A:</b>							
Lakepark-----	50	2w	4.1	140	82	44	56
Parnell, depressional---	35	3w	3.4	124	72	37	50
Emrick-----	8	2e	4.6	138	80	43	55
Vallers-----	7	2w	4.1	134	78	40	53
<b>J50A:</b>							
Balaton-----	45	2s	4.8	144	84	46	58
Tara-----	35	1	4.8	145	84	46	58
McIntosh-----	10	2s	4.3	137	80	41	56
Well drained soils-----	5	2e	4.7	142	82	45	56
Winger-----	5	2w	4.1	134	78	40	53
<b>J51A:</b>							
Bearden-----	60	2s	4.2	140	82	44	58
Quam, depressional-----	30	3w	3.6	126	73	38	51
Rondell-----	7	2e	4.3	137	80	41	56
Winger-----	3	2w	4.1	134	78	40	53

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Brome-grass-alfalfa hay Tons	Corn Bu	Oats Bu	Soybeans Bu	Spring wheat Bu
<b>J52A:</b>							
Rondell-----	85	2e	4.3	137	80	41	56
Zell-----	9	3e	4.6	140	82	44	56
Bearden-----	6	2s	4.2	140	82	44	58
<b>J53A:</b>							
Ortonville-----	85	2s	4.3	137	79	43	55
Well drained soils-----	10	2e	4.2	135	78	42	54
Vallers-----	5	2w	4.1	134	78	40	53
<b>J54A:</b>							
Marysland, depressional	90	3w	2.6	90	66	30	46
Marysland soils that are not ponded-----	10	2w	3.3	110	72	33	50
<b>J55A:</b>							
Sedgeville-----	90	4w	---	---	---	---	---
Soils that are frequently flooded-----	10	6w	---	---	---	---	---
<b>J56A:</b>							
Winger-----	40	2w	4.1	134	78	40	53
Balaton-----	30	2s	4.8	144	84	46	58
Parnell, depressional---	20	3w	3.4	124	72	37	50
Colvin-----	5	2w	4.1	136	79	43	54
Vallers-----	5	2w	4.1	134	78	40	53
<b>J57A:</b>							
Balaton-----	85	2s	4.8	144	84	46	58
Well drained soils-----	5	2e	4.7	142	82	44	56
Tara-----	5	1	4.8	145	84	46	58
Vallers-----	5	2w	4.1	134	78	40	53
<b>J58B:</b>							
Torning-----	45	3e	2.8	92	68	28	45
Egeland-----	40	3e	3.2	98	69	31	47
Clontarf-----	10	3s	3.4	110	72	33	50
Sverdrup-----	5	3e	2.5	80	65	26	44
<b>J59A:</b>							
Urness, sandy substratum	90	8w	---	---	---	---	---
Marysland-----	10	2w	---	---	---	---	---

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Bromegrass-	Corn	Oats	Soybeans	Spring wheat
			alfalfa hay Tons	Bu	Bu	Bu	Bu
<b>J60B:</b>							
Hattie-----	46	2s	3.8	123	73	35	50
Audubon-----	44	2e	4.0	127	77	39	54
Foxlake-----	10	2w	3.6	120	70	36	48
<b>J60C:</b>							
Hattie-----	60	3e	3.3	103	61	30	41
Audubon-----	30	3e	3.5	107	65	34	45
Foxlake-----	10	2w	3.6	120	70	36	48
<b>J61A:</b>							
Svea, bouldery-----	90	5s	---	---	---	---	---
Vallers, bouldery-----	5	5w	---	---	---	---	---
Parnell, depressional---	5	3w	---	---	---	---	---
<b>J62C:</b>							
Buse, very bouldery----	45	6e	---	---	---	---	---
Barnes, very bouldery---	25	6e	---	---	---	---	---
Hokans-----	15	6e	---	---	---	---	---
Svea, bouldery-----	10	5s	---	---	---	---	---
Darnen-----	5	2e	---	---	---	---	---
<b>J62F:</b>							
Buse, very bouldery----	50	7e	---	---	---	---	---
Barnes, very bouldery---	40	7e	---	---	---	---	---
Darnen-----	10	2e	---	---	---	---	---
<b>J63A:</b>							
Ortonville-----	45	2s	4.3	137	79	43	55
Vallers-----	35	2w	4.1	134	78	40	53
Parnell, depressional---	20	3w	3.4	124	72	37	50
<b>J64A:</b>							
Quam-----	90	2w	4.2	139	80	43	56
Colvin-----	5	2w	4.1	136	79	43	54
Quam, depressional-----	5	3w	3.6	126	73	38	51
<b>J65A:</b>							
Shakopee-----	90	2w	2.5	90	64	25	43
Soils in depressions---	10	3w	2.4	86	60	24	40
<b>J66A:</b>							
Emrick-----	85	2e	4.6	138	80	43	55

Table 4.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and component name	Pct. of map unit	Land capability	Brome-grass-alfalfa hay	Corn	Oats	Soybeans	Spring wheat
			Tons	Bu	Bu	Bu	Bu
J66A:							
Lakepark-----	10	2w	4.1	140	82	44	56
Heimdal-----	5	2e	4.5	136	80	43	56
J67A:							
Fordtown-----	85	2s	3.7	105	78	36	53
Renshaw-----	8	3s	2.6	80	65	25	45
Spottswood-----	7	2s	3.6	104	77	35	52
J68A:							
Kerkhoven-----	55	2w	4.0	130	75	39	52
Friberg, depressional---	35	3w	3.3	120	70	35	48
Emrick-----	10	2e	4.6	138	80	43	55
L33B:							
Kandiyohi-----	85	2e	3.9	125	76	37	52
Cosmos-----	10	2w	3.6	120	70	36	48
Okoboji-----	5	3w	3.4	118	68	35	47
L34A:							
Cosmos-----	85	2w	3.6	120	70	36	48
Kandiyohi-----	10	2e	3.9	125	76	37	52
Okoboji-----	5	3w	3.4	118	68	35	47
M-W:							
Water, miscellaneous---	100	---	---	---	---	---	---
W:							
Water-----	100	---	---	---	---	---	---

Table 5.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
J1A	Parnell silty clay loam, depressionnal, 0 to 1 percent slopes (where drained)
J2A	La Prairie loam, 0 to 2 percent slopes, occasionally flooded (where protected from flooding or not frequently flooded during the growing season)
J3A	Arveson sandy loam, 0 to 2 percent slopes (where drained)
J4A	Rockwell loam, 0 to 2 percent slopes (where drained)
J5A	Fossum sandy loam, 0 to 2 percent slopes (where drained)
J6A	McDonaldsville silty clay, 0 to 2 percent slopes (where drained)
J8A	Egeland sandy loam, 0 to 2 percent slopes
J8B	Egeland sandy loam, 2 to 6 percent slopes
J9A	Estelline silt loam, 0 to 2 percent slopes
J10A	Sinai silty clay, 0 to 2 percent slopes
J10B	Sinai silty clay, 2 to 6 percent slopes
J11A	Vallers clay loam, 0 to 2 percent slopes (where drained)
J12A	Marysland loam, 0 to 2 percent slopes (where drained)
J13A	Oldham silty clay loam, depressionnal, 0 to 1 percent slopes (where drained)
J15B	Eckman silt loam, 2 to 6 percent slopes
J16A	Friberg silt loam, depressionnal, 0 to 2 percent slopes (where drained)
J17A	Quam silty clay loam, depressionnal, 0 to 1 percent slopes (where drained)
J18A	Malachy sandy loam, 1 to 3 percent slopes
J20A	Clontarf sandy loam, 1 to 3 percent slopes
J23A	Lamoure silty clay loam, 0 to 2 percent slopes, occasionally flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
J26B	Darnen loam, 2 to 6 percent slopes
J27A	Hantho silt loam, 1 to 3 percent slopes
J30A	Tara silt loam, 1 to 3 percent slopes
J32A	Bigstone silty clay loam, depressionnal, 0 to 1 percent slopes (where drained)
J34B	Byrne-Buse complex, 2 to 6 percent slopes
J35B	Hokans-Buse complex, 2 to 6 percent slopes
J38B	Zell-Eckman complex, 2 to 6 percent slopes
J40A	Foxlake silty clay, 0 to 2 percent slopes (where drained)
J41A	Urness mucky silty clay loam, depressionnal, 0 to 1 percent slopes (where drained)
J44B	Esmond-Heimdal complex, 2 to 6 percent slopes
J46B	Byrne silt loam, 2 to 4 percent slopes
J47A	Swenoda sandy loam, moderately wet, 1 to 3 percent slopes
J49A	Lakepark-Parnell, depressionnal, complex, 0 to 2 percent slopes (where drained)
J50A	Balaton-Tara complex, 1 to 3 percent slopes
J51A	Bearden-Quam, depressionnal, complex, 0 to 2 percent slopes
J52A	Rondell silty clay loam, 1 to 3 percent slopes
J53A	Ortonville loam, 1 to 3 percent slopes
J54A	Marysland loam, depressionnal, 0 to 1 percent slopes (where drained)
J56A	Winger-Balaton-Parnell, depressionnal, complex, 0 to 3 percent slopes (where drained)
J57A	Balaton loam, 1 to 3 percent slopes
J58B	Torning-Egeland complex, 2 to 6 percent slopes
J60B	Hattie-Audubon complex, 1 to 4 percent slopes
J63A	Ortonville-Vallers-Parnell, depressionnal, complex, 0 to 3 percent slopes (where drained)
J64A	Quam silty clay loam, 0 to 2 percent slopes (where drained)
J65A	Shakopee silty clay, 0 to 2 percent slopes (where drained)
J66A	Emrick loam, 1 to 3 percent slopes
J67A	Fordtown loam, 1 to 3 percent slopes
J68A	Kerkhoven-Friberg, depressionnal, complex, 0 to 2 percent slopes (where drained)
L33B	Kandiyohi clay, 2 to 5 percent slopes
L34A	Cosmos silty clay, 0 to 2 percent slopes (where drained)

Table 6.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
GP:						
Pits, gravel-----	80	---	---	---	---	---
Udipsamments-----	20	---	---	---	---	---
J1A:						
Parnell, depressional---	90	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
Colvin-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Vallers-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J2A:						
La Prairie-----	90	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Lamoure-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J3A:						
Arveson-----	80	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Marysland-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J3A: Marysland, depressional	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Malachy-----	5	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
J4A: Rockwell-----	90	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Arveson-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J5A: Fossum-----	85	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Arveson-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Fossum, depressional----	3	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Hecla-----	2	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J6A: McDonaldsville-----	90	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
Somewhat poorly drained soils-----	10	Redosier dogwood----	American plum, common lilac, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Golden willow, green ash	Eastern cottonwood
J7A: Sverdrup-----	85	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Arveson-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Clontarf-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Egeland-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J7B: Sverdrup-----	90	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J7B: Clontarf-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Egeland-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J8A: Egeland-----	80	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Clontarf-----	10	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Sverdrup-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Arveson-----	3	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Hantho-----	2	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J8B: Egeland-----	80	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J8B: Clontarf-----	8	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Sverdrup-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Torning-----	3	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Eckman-----	2	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Egeland, eroded-----	2	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J9A: Estelline-----	90	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Soils that have a thin surface layer-----	10	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J10A: Sinai-----	90	American plum, common chokecherry, common lilac, sargent crabapple	Siberian peashrub, eastern redcedar	Austrian pine, Russian-olive, ponderosa pine, bur oak	Green ash-----	Eastern cottonwood
Fulda-----	10	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
J10B: Sinai-----	90	American plum, common chokecherry, common lilac, sargent crabapple	Siberian peashrub, eastern redcedar	Austrian pine, Russian-olive, ponderosa pine, bur oak	Green ash-----	Eastern cottonwood
Fulda-----	10	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
J11A: Vallars-----	85	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Parnell, depressional---	10	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
Balaton-----	5	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
J12A: Marysland-----	85	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
<b>J12A:</b>						
Arveson-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Marysland, depressional	3	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Malachy-----	2	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
<b>J13A:</b>						
Oldham-----	90	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Colvin-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Vallers-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
<b>J14F:</b>						
Esmond-----	85	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Emrick-----	10	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J14F: Heimdal-----	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
J15B: Eckman-----	80	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Eckman, eroded-----	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Egeland-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Hantho-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Zell-----	5	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
J16A: Friberg, depressional---	90	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	White willow, golden willow	Siberian elm, eastern cottonwood, robusta cottonwood
Kerkhoven-----	10	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J17A: Quam, depressional-----	90	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
Colvin-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Vallers-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J18A: Malachy-----	85	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Arveson-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Well drained soils-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Clontarf-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J19A: Hecla-----	80	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Clontarf-----	10	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J19A: Sverdrup-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Hamar-----	3	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
Malachy-----	2	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
J20A: Clontarf-----	80	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Hecla-----	10	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Arveson-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Well drained soils-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J21A: Hamar-----	85	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J21A: Less sandy soils-----	8	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
Arveson-----	4	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Hecla-----	3	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J22A: Renshaw-----	85	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Fordtown-----	10	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Arvilla-----	3	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Fordville-----	2	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J23A: Lamoure-----	85	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Rauville-----	10	---	---	---	---	---
La Prairie-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J24F: Buse-----	85	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Darnen-----	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Barnes-----	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
J25A: Rauville-----	90	---	---	---	---	---
Lamoure-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J26B: Darnen-----	90	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J26B: Hokans-----	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Lakepark-----	5	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
J27A: Hantho-----	85	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Eckman-----	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Quam-----	5	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
Rondell-----	3	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Tara-----	2	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J28A: Vallars, bouldery-----	90	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J28A: Parnell, depressional---	10	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
J29A: Cathro-----	90	Redosier dogwood---	Siberian peashrub, silky dogwood	Green ash-----	Black willow, golden willow, white willow	Carolina poplar
Colvin-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Vallers-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J30A: Tara-----	90	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Balaton-----	5	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Byrne-----	3	Redosier dogwood---	American plum, Siberian peashrub, common lilac, bur oak, eastern redcedar	Manchurian crabapple, Russian olive, blue spruce, ponderosa pine	Green ash-----	---
Quam-----	2	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J31B:						
Arvilla-----	45	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Sandberg-----	30	Siberian peashrub, common lilac, sargent crabapple	Common chokecherry	Black Hills spruce, Russian-olive, blue spruce, eastern redcedar, ponderosa pine, silver maple, green ash	Eastern cottonwood	---
Renshaw-----	10	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Sioux-----	10	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Fordtown-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J32A:						
Bigstone-----	80	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Urness-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J32A: Colvin-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Vallers-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J33D2: Sisseton, eroded-----	70	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Heimdal, eroded-----	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Esmond, eroded-----	10	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Heimdal, slightly eroded	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Emrick-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J34B: Byrne-----	45	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J34B:						
Buse-----	35	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Buse, eroded-----	10	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Hokans-----	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Tara-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J35B:						
Hokans-----	45	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Buse-----	30	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Barnes-----	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Buse, eroded-----	10	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J35B: Svea-----	5	Nanking cherry, sargent crabapple	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J36C2: Buse, eroded-----	45	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Barnes, eroded-----	20	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Barnes, slightly eroded	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Buse, slightly eroded---	10	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Darnen-----	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Langhei, eroded-----	5	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
J37D2: Langhei, eroded-----	60	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J37D2: Barnes, eroded-----	15	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Buse, eroded-----	10	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Darnen-----	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Barnes, slightly eroded	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
J38B: Zell-----	41	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Eckman-----	39	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Zell, eroded-----	10	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Egeland-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J38B: Hantho-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J38C2: Zell, eroded-----	45	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Eckman, eroded-----	20	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Zell, slightly eroded---	15	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Hantho-----	10	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Eckman, slightly eroded	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Egeland-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J39A: Udorthents-----	100	---	---	---	---	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J40A: Foxlake-----	85	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
Audubon-----	5	American plum, common chokecherry, common lilac, sargent crabapple	Siberian peashrub, eastern redcedar	Austrian pine, Russian-olive, ponderosa pine, bur oak	Green ash-----	Eastern cottonwood
Calcareous soils-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Soils in depressions----	5	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
J41A: Urness-----	80	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Bigstone-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Colvin-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Vallers-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J42C: Sandberg-----	60	Siberian peashrub, common lilac, sargent crabapple	Common chokecherry	Black Hills spruce, Russian-olive, blue spruce, eastern redcedar, ponderosa pine, silver maple, green ash	Eastern cottonwood	---
Arvilla-----	30	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Everts-----	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
J43A: Quam, depression-----	30	---	---	---	---	---
Cathro-----	30	---	---	---	---	---
Urness-----	30	---	---	---	---	---
Colvin-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Vallers-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J44B: Esmond-----	45	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J44B: Heimdal-----	40	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Esmond, eroded-----	10	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Emrick-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
J44C2: Esmond, eroded-----	40	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Heimdal, eroded-----	25	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Esmond, slightly eroded	15	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Heimdal, slightly eroded	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Emrick-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J44C2: Sisseton, eroded-----	5	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
J45F: Sandberg-----	80	Siberian peashrub, common lilac, sargent crabapple	Common chokecherry	Black Hills spruce, Russian-olive, blue spruce, eastern redcedar, ponderosa pine, silver maple, green ash	Eastern cottonwood	---
Everts-----	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Arvilla-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Sioux-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J46B: Byrne-----	85	Redosier dogwood----	American plum, Siberian peashrub, common lilac, bur oak, eastern redcedar	Manchurian crabapple, Russian olive, blue spruce, ponderosa pine	Green ash-----	---
Hokans-----	7	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J46B: Buse-----	5	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Quam-----	3	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
J47A: Swenoda-----	85	Siberian peashrub, sargent crabapple	American plum, common chokecherry, ponderosa pine	Black Hills spruce, blue spruce, bur oak, eastern redcedar, Russian- olive, green ash	---	Eastern cottonwood
Clontarf-----	10	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Egeland-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J48A: Bigstone-----	40	---	---	---	---	---
Parnell-----	40	---	---	---	---	---
Colvin-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Vallars-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J49A:						
Lakepark-----	50	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
Parnell, depressiona---	35	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
Emrick-----	8	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Vallers-----	7	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J50A:						
Balaton-----	45	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Tara-----	35	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
McIntosh-----	10	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Well drained soils-----	5	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Winger-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J51A: Bearden-----	60	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Quam, depressional-----	30	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
Rondell-----	7	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Winger-----	3	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J52A: Rondell-----	85	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Zell-----	9	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Bearden-----	6	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
J53A: Ortonville-----	85	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Well drained soils-----	10	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J53A: Vallers-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J54A: Marysland, depressional	90	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Marysland soils that are not ponded-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J55A: Sedgeville-----	90	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Soils that are frequently flooded----	10	---	---	---	---	---
J56A: Winger-----	40	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Balaton-----	30	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Parnell, depressional---	20	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
Colvin-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J56A: Vallars-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J57A: Balaton-----	85	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Well drained soils-----	5	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Tara-----	5	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Vallars-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J58B: Torning-----	45	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Egeland-----	40	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Clontarf-----	10	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J58B: Sverdrup-----	5	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J59A: Urness, sandy substratum	90	---	---	---	---	---
Marysland-----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J60B: Hattie-----	46	American plum, common chokecherry, common lilac, sargent crabapple	Siberian peashrub, eastern redcedar	Austrian pine, Russian-olive, ponderosa pine, bur oak	Green ash-----	Eastern cottonwood
Audubon-----	44	American plum, common chokecherry, common lilac, sargent crabapple	Siberian peashrub, eastern redcedar	Austrian pine, Russian-olive, ponderosa pine, bur oak	Green ash-----	Eastern cottonwood
Foxlake-----	10	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
J60C: Hattie-----	60	American plum, common chokecherry, common lilac, sargent crabapple	Siberian peashrub, eastern redcedar	Austrian pine, Russian-olive, ponderosa pine, bur oak	Green ash-----	Eastern cottonwood
Audubon-----	30	American plum, common chokecherry, common lilac, sargent crabapple	Siberian peashrub, eastern redcedar	Austrian pine, Russian-olive, ponderosa pine, bur oak	Green ash-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J60C: Foxlake-----	10	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
J61A: Svea, bouldery-----	90	Nanking cherry, sargent crabapple	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Vallers, bouldery-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Parnell, depressional---	5	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
J62C: Buse, very bouldery----	45	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Barnes, very bouldery---	25	Nanking cherry, Peking cotoneaster, redosier dogwood, redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Hokans-----	15	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Svea, bouldery-----	10	Nanking cherry, sargent crabapple	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J62C: Darnen-----	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
J62F: Buse, very bouldery----	50	American plum, Siberian peashrub, common lilac, silver buffaloberry	Black Hills spruce, blue spruce, eastern redcedar	Russian-olive, bur oak, green ash, ponderosa pine	Eastern cottonwood	---
Barnes, very bouldery---	40	Nanking cherry, redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
Darnen-----	10	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
J63A: Ortonville-----	45	American plum, sargent crabapple	Siberian peashrub, blue spruce, common chokecherry, eastern redcedar	Black Hills spruce, Russian-olive, bur oak, ponderosa pine	Golden willow-----	Eastern cottonwood
Vallers-----	35	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Parnell, depressional---	20	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
J64A: Quam-----	90	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J64A: Colvin-----	5	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Quam, depressional-----	5	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
J65A: Shakopee-----	90	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
Soils in depressions----	10	Redosier dogwood, sargent crabapple	Common chokecherry	Black Hills spruce, eastern redcedar, blue spruce, ponderosa pine	Russian-olive, green ash	Golden willow, Siouxland cottonwood
J66A: Emrick-----	85	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
Lakepark-----	10	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
Heimdahl-----	5	Redosier dogwood, sargent crabapple	American plum, common chokecherry	Black Hills spruce, bur oak, eastern redcedar, Russian- olive, blue spruce, ponderosa pine	Green ash-----	Eastern cottonwood
J67A: Fordtown-----	85	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
J67A: Renshaw-----	8	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
Spottswood-----	7	American plum, sargent crabapple	Siberian peashrub, bur oak, eastern redcedar	Blue spruce, common chokecherry, ponderosa pine, Russian-olive, green ash	Black Hills spruce	Eastern cottonwood
J68A: Kerkhoven-----	55	Common lilac, redosier dogwood	American plum, eastern redcedar	Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	Green ash-----	Golden willow, eastern cottonwood
Friberg, depressional---	35	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, Russian-olive, green ash	Golden willow, white willow	Siberian elm, eastern cottonwood, robusta cottonwood
Emrick-----	10	Sargent crabapple---	American plum, common chokecherry, redosier dogwood, eastern redcedar	Black Hills spruce, blue spruce, bur oak, Russian-olive, ponderosa pine	Golden willow-----	Eastern cottonwood
L33B: Kandiyohi-----	85	American plum, common chokecherry, common lilac, sargent crabapple	Siberian peashrub---	Austrian pine, Russian-olive, eastern redcedar, ponderosa pine, bur oak, green ash	---	Eastern cottonwood
Cosmos-----	10	---	Common lilac, redosier dogwood, eastern redcedar	American plum, Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	---	Golden willow, green ash, eastern cottonwood

Table 6.--Windbreaks and Environmental Plantings--Continued

Map symbol and component name	Pct. of map unit	Trees having predicted 20-year average height, in feet, of--				
		<8	8-15	16-25	26-35	>35
L33B: Okoboji-----	5	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, green ash	Russian-olive, Siberian elm, golden willow, white willow	Eastern cottonwood, robusta cottonwood
L34A: Cosmos-----	85	---	Common lilac, redosier dogwood, eastern redcedar	American plum, Black Hills spruce, blue spruce, common chokecherry, ponderosa pine, common hackberry	---	Golden willow, green ash, eastern cottonwood
Kandiyohi-----	10	American plum, common chokecherry, common lilac, sargent crabapple	Siberian peashrub---	Austrian pine, Russian-olive, eastern redcedar, ponderosa pine, bur oak, green ash	---	Eastern cottonwood
Okoboji-----	5	Redosier dogwood, silver buffaloberry	Siberian peashrub, gray dogwood	White spruce, green ash	Russian-olive, Siberian elm, golden willow, white willow	Eastern cottonwood, robusta cottonwood
M-W: Water, miscellaneous----	100	---	---	---	---	---
W: Water-----	100	---	---	---	---	---

Table 7.--Windbreak Suitability Groups

(Suitable shrubs and trees with their mature heights are listed in table 6. Absence of an entry indicates that a windbreak suitability group is not assigned)

Map symbol and component name	Windbreak suitability group
GP:	
Pits, gravel.	
Udipsamments.	
J1A:	
Parnell, depressional	2
Colvin-----	2K
Vallers-----	2K
J2A:	
La Prairie-----	1
Lamoure-----	2K
J3A:	
Arveson-----	2K
Marysland-----	2K
Marysland, depressional-----	2K
Malachy-----	1K
J4A:	
Rockwell-----	2K
Arveson-----	2K
J5A:	
Fossum-----	2K
Arveson-----	2K
Fossum, depressional--	2K
Hecla-----	1
J6A:	
McDonaldsville-----	2
Somewhat poorly drained soils-----	2
J7A:	
Sverdrup-----	6G
Arveson-----	2K
Clontarf-----	1
Egeland-----	6G

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
J7B:	
Sverdrup-----	6G
Clontarf-----	1
Egeland-----	6G
J8A:	
Egeland-----	6G
Clontarf-----	1
Sverdrup-----	6G
Arveson-----	2K
Hantho-----	1
J8B:	
Egeland-----	6G
Clontarf-----	1
Sverdrup-----	6G
Torning-----	6G
Eckman-----	3
Egeland, eroded-----	6G
J9A:	
Estelline-----	6G
Soils that have a thin surface layer-----	6G
J10A:	
Sinai-----	4C
Fulda-----	2
J10B:	
Sinai-----	4C
Fulda-----	2
J11A:	
Vallers-----	2K
Parnell, depressional	2
Balaton-----	1K
J12A:	
Marysland-----	2K
Arveson-----	2K
Marysland, depressional-----	2K
Malachy-----	1K

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
J13A:	
Oldham-----	2K
Colvin-----	2K
Vallers-----	2K
J14F:	
Esmond-----	8
Emrick-----	1
Heimdal-----	3
J15B:	
Eckman-----	3
Eckman, eroded-----	3
Egeland-----	6G
Hantho-----	1
Zell-----	8
J16A:	
Friberg, depressional	2
Kerkhoven-----	2
J17A:	
Quam, depressional----	2
Colvin-----	2K
Vallers-----	2K
J18A:	
Malachy-----	1K
Arveson-----	2K
Well drained soils----	6G
Clontarf-----	1
J19A:	
Hecla-----	1
Clontarf-----	1
Sverdrup-----	6G
Hamar-----	2
Malachy-----	1K
J20A:	
Clontarf-----	1
Hecla-----	1
Arveson-----	2K

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
J20A: Well drained soils----	6G
J21A: Hamar-----	2
Less sandy soils-----	2
Arveson-----	2K
Hecla-----	1
J22A: Renshaw-----	6G
Fordtown-----	6G
Arvilla-----	6G
Fordville-----	6G
J23A: Lamoure-----	2K
Rauville-----	10
La Prairie-----	1
J24F: Buse-----	8
Darnen-----	3
Barnes-----	3
J25A: Rauville-----	10
Lamoure-----	2K
J26B: Darnen-----	3
Hokans-----	3
Lakepark-----	2
J27A: Hantho-----	1
Eckman-----	3
Quam-----	2
Rondell-----	1K
Tara-----	1
J28A: Valliers, bouldery----	2K
Parnell, depressional	2

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
J29A:	
Cathro-----	2H
Colvin-----	2K
Vallers-----	2K
J30A:	
Tara-----	1
Balaton-----	1K
Byrne-----	3
Quam-----	2
J31B:	
Arvilla-----	6G
Sandberg-----	7
Renshaw-----	6G
Sioux-----	6G
Fordtown-----	6G
J32A:	
Bigstone-----	2K
Urness-----	2K
Colvin-----	2K
Vallers-----	2K
J33D2:	
Sisseton, eroded-----	8
Heimdal, eroded-----	3
Esmond, eroded-----	8
Heimdal, slightly eroded-----	3
Emrick-----	1
J34B:	
Byrne-----	3
Buse-----	8
Buse, eroded-----	8
Hokans-----	3
Tara-----	1
J35B:	
Hokans-----	3

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
J35B:	
Buse-----	8
Barnes-----	3
Buse, eroded-----	8
Svea-----	1
J36C2:	
Buse, eroded-----	8
Barnes, eroded-----	3
Barnes, slightly eroded-----	3
Buse, slightly eroded	8
Darnen-----	3
Langhei, eroded-----	8
J37D2:	
Langhei, eroded-----	8
Barnes, eroded-----	3
Buse, eroded-----	8
Darnen-----	3
Barnes, slightly eroded-----	3
J38B:	
Zell-----	8
Eckman-----	3
Zell, eroded-----	8
Egeland-----	6G
Hantho-----	1
J38C2:	
Zell, eroded-----	8
Eckman, eroded-----	3
Zell, slightly eroded	8
Hantho-----	1
Eckman, slightly eroded-----	3
Egeland-----	6G
J39A.	
Udorthents	

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
J40A:	
Foxlake-----	2
Audubon-----	4C
Calcareous soils-----	2K
Soils in depressions--	2
J41A:	
Urness-----	2K
Bigstone-----	2K
Colvin-----	2K
Vallers-----	2K
J42C:	
Sandberg-----	7
Arvilla-----	6G
Everts-----	3
J43A:	
Quam, depressiona-----	10
Cathro-----	10
Urness-----	10
Colvin-----	2K
Vallers-----	2K
J44B:	
Esmond-----	8
Heimdal-----	3
Esmond, eroded-----	8
Emrick-----	1
J44C2:	
Esmond, eroded-----	8
Heimdal, eroded-----	3
Esmond, slightly eroded-----	8
Heimdal, slightly eroded-----	3
Emrick-----	1
Sisseton, eroded-----	8

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
J45F:	
Sandberg-----	7
Everts-----	3
Arvilla-----	6G
Sioux-----	6G
J46B:	
Byrne-----	3
Hokans-----	3
Buse-----	8
Quam-----	2
J47A:	
Swenoda-----	5
Clontarf-----	1
Egeland-----	6G
J48A:	
Bigstone-----	10
Parnell-----	10
Colvin-----	2K
Vallers-----	2K
J49A:	
Lakepark-----	2
Parnell, depressiona	2
Emrick-----	1
Vallers-----	2K
J50A:	
Balaton-----	1K
Tara-----	1
McIntosh-----	1
Well drained soils----	1K
Winger-----	2K
J51A:	
Bearden-----	1
Quam, depressiona----	2
Rondell-----	1K
Winger-----	2K

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
J52A:	
Rondell-----	1K
Zell-----	8
Bearden-----	1
J53A:	
Ortonville-----	1K
Well drained soils----	1K
Vallers-----	2K
J54A:	
Marysland, depressional-----	2K
Marysland soils that are not ponded-----	2K
J55A:	
Sedgeville-----	2K
Soils that are frequently flooded---	10
J56A:	
Winger-----	2K
Balaton-----	1K
Parnell, depressional	2
Colvin-----	2K
Vallers-----	2K
J57A:	
Balaton-----	1K
Well drained soils----	1K
Tara-----	1
Vallers-----	2K
J58B:	
Torning-----	6G
Egeland-----	6G
Clontarf-----	1
Sverdrup-----	6G
J59A:	
Urness, sandy substratum-----	10
Marysland-----	2K

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
<b>J60B:</b>	
Hattie-----	4C
Audubon-----	4C
Foxlake-----	2
<b>J60C:</b>	
Hattie-----	4C
Audubon-----	4C
Foxlake-----	2
<b>J61A:</b>	
Svea, bouldery-----	1
Vallers, bouldery-----	2K
Parnell, depressional	2
<b>J62C:</b>	
Buse, very bouldery---	8
Barnes, very bouldery	3
Hokans-----	3
Svea, bouldery-----	1
Darnen-----	3
<b>J62F:</b>	
Buse, very bouldery---	8
Barnes, very bouldery	3
Darnen-----	3
<b>J63A:</b>	
Ortonville-----	1K
Vallers-----	2K
Parnell, depressional	2
<b>J64A:</b>	
Quam-----	2
Colvin-----	2K
Quam, depressional----	2
<b>J65A:</b>	
Shakopee-----	2K
Soils in depressions--	2K
<b>J66A:</b>	
Emrick-----	1
Lakepark-----	2

Table 7.--Windbreak Suitability Groups--Continued

Map symbol and component name	Windbreak suitability group
J66A: Heimdal-----	3
J67A: Fordtown-----	6G
Renshaw-----	6G
Spottswood-----	6G
J68A: Kerkhoven-----	2
Friberg, depressional	2
Emrick-----	1
L33B: Kandiyohi-----	4C
Cosmos-----	2
Okoboji-----	2
L34A: Cosmos-----	2
Kandiyohi-----	4C
Okoboji-----	2
M-W. Water, miscellaneous	
W. Water	

Table 8a.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GP:							
Pits, gravel-----	80	Not rated		Not rated		Not rated	
Udipsamments-----	20	Not rated		Not rated		Not rated	
J1A:							
Parnell, depressional-----	90	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J2A:							
La Prairie-----	90	Very limited Flooding Depth to saturated zone	1.00 0.01	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.01
Lamoure-----	10	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
J3A:							
Arveson-----	80	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Marysland-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Marysland, depressional-----	5	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Malachy-----	5	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J4A:</b>							
Rockwell-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Arveson-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J5A:</b>							
Fossum-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Fossum, depressional	3	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Hecla-----	2	Somewhat limited Too sandy Depth to saturated zone	0.96 0.01	Somewhat limited Too sandy	0.96	Somewhat limited Depth to saturated zone	0.01
<b>J6A:</b>							
McDonaldsville-----	90	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94
Somewhat poorly drained soils-----	10	Very limited Too clayey Depth to saturated zone Restricted permeability	1.00 0.99 0.94	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.78	Very limited Too clayey Depth to saturated zone Restricted permeability	1.00 0.99 0.94
<b>J7A:</b>							
Sverdrup-----	85	Not limited		Not limited		Not limited	
Arveson-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Clontarf-----	5	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
Egeland-----	5	Not limited		Not limited		Not limited	

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J7B:</b>							
Sverdrup-----	90	Not limited		Not limited		Somewhat limited Slope	0.50
Clontarf-----	5	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
Egeland-----	5	Not limited		Not limited		Somewhat limited Slope	0.12
<b>J8A:</b>							
Egeland-----	80	Not limited		Not limited		Not limited	
Clontarf-----	10	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
Sverdrup-----	5	Not limited		Not limited		Not limited	
Arveson-----	3	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Hantho-----	2	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
<b>J8B:</b>							
Egeland-----	80	Not limited		Not limited		Somewhat limited Slope	0.50
Clontarf-----	8	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
Sverdrup-----	5	Not limited		Not limited		Somewhat limited Slope	0.88
Torning-----	3	Not limited		Not limited		Somewhat limited Slope	0.88
Eckman-----	2	Not limited		Not limited		Somewhat limited Slope	0.12
Egeland, eroded----	2	Not limited		Not limited		Somewhat limited Slope	0.88
<b>J9A:</b>							
Estelline-----	90	Not limited		Not limited		Not limited	
Soils that have a thin surface layer	10	Not limited		Not limited		Not limited	

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J10A: Sinai-----	90	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.96 0.01	Very limited Too clayey Restricted permeability	1.00 0.96	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.96 0.01
Fulda-----	10	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.96
J10B: Sinai-----	90	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.96 0.01	Very limited Too clayey Restricted permeability	1.00 0.96	Very limited Too clayey Restricted permeability Slope Depth to saturated zone	1.00 0.96 0.50 0.01
Fulda-----	10	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.96
J11A: Vallers-----	85	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
Parnell, depressional-----	10	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
Balaton-----	5	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
J12A: Marysland-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J12A: Marysland, depressional-----	3	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Malachy-----	2	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
J13A: Oldham-----	90	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.60	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.60	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.60
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J14F: Esmond-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Emrick-----	10	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Slope Depth to saturated zone	0.88 0.01
Heimdal-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
J15B: Eckman-----	80	Not limited		Not limited		Somewhat limited Slope	0.12
Eckman, eroded-----	5	Not limited		Not limited		Somewhat limited Slope	0.50
Egeland-----	5	Not limited		Not limited		Somewhat limited Slope	0.12
Hantho-----	5	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
Zell-----	5	Not limited		Not limited		Somewhat limited Slope	0.50

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J16A: Friberg, depressional-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Kerkhoven-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J17A: Quam, depressional--	90	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.21	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.21	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.21
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J18A: Malachy-----	85	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Arveson-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Well drained soils--	5	Not limited		Not limited		Somewhat limited Slope	0.12
Clontarf-----	5	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
J19A: Hecla-----	80	Somewhat limited Too sandy Depth to saturated zone	0.96 0.01	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy Depth to saturated zone	0.96 0.01
Clontarf-----	10	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
Sverdrup-----	5	Not limited		Not limited		Not limited	

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J19A:							
Hamar-----	3	Very limited Depth to saturated zone Too sandy	1.00 0.92	Very limited Depth to saturated zone Too sandy	1.00 0.92	Very limited Depth to saturated zone Too sandy	1.00 0.92
Malachy-----	2	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
J20A:							
Clontarf-----	80	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
Hecla-----	10	Somewhat limited Too sandy Depth to saturated zone	0.96 0.01	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy Depth to saturated zone	0.96 0.01
Arveson-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Well drained soils--	5	Not limited		Not limited		Somewhat limited Slope	0.12
J21A:							
Hamar-----	85	Very limited Depth to saturated zone Too sandy	1.00 0.92	Very limited Depth to saturated zone Too sandy	1.00 0.92	Very limited Depth to saturated zone Too sandy	1.00 0.92
Less sandy soils----	8	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	4	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Hecla-----	3	Somewhat limited Too sandy Depth to saturated zone	0.96 0.01	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy Depth to saturated zone	0.96 0.01
J22A:							
Renshaw-----	85	Not limited		Not limited		Not limited	
Fordtown-----	10	Not limited		Not limited		Not limited	
Arvilla-----	3	Not limited		Not limited		Somewhat limited Slope	0.12
Fordville-----	2	Not limited		Not limited		Not limited	

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J23A:</b>							
Lamoure-----	85	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
Rauville-----	10	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 1.00
La Prairie-----	5	Very limited Flooding Depth to saturated zone	1.00 0.01	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.01
<b>J24F:</b>							
Buse-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Darnen-----	10	Not limited		Not limited		Somewhat limited Slope	0.88
Barnes-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
<b>J25A:</b>							
Rauville-----	90	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 1.00
Lamoure-----	10	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
<b>J26B:</b>							
Darnen-----	90	Not limited		Not limited		Somewhat limited Slope	0.50
Hokans-----	5	Not limited		Not limited		Somewhat limited Slope	0.50
Lakepark-----	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
<b>J27A:</b>							
Hantho-----	85	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
Eckman-----	5	Not limited		Not limited		Somewhat limited Slope	0.12

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J27A: Quam-----	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
Rondell-----	3	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Tara-----	2	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
J28A: Vallers, bouldery---	90	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
Parnell, depressional-----	10	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
J29A: Cathro-----	90	Very limited Depth to saturated zone Content of organic matter Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Content of organic matter Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Content of organic matter Ponding	1.00 1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J30A: Tara-----	90	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
Balaton-----	5	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Byrne-----	3	Not limited		Not limited		Somewhat limited Slope	0.50

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J30A:							
Quam-----	2	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
J31B:							
Arvilla-----	45	Not limited		Not limited		Somewhat limited Slope	0.50
Sandberg-----	30	Somewhat limited Gravel content	0.01	Somewhat limited Gravel content	0.01	Very limited Gravel content Slope Content of large stones	1.00 0.50 0.01
Renshaw-----	10	Not limited		Not limited		Not limited	
Sioux-----	10	Not limited		Not limited		Somewhat limited Slope	0.88
Fordtown-----	5	Not limited		Not limited		Not limited	
J32A:							
Bigstone-----	80	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Urness-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
J33D2:							
Sisseton, eroded----	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Heimdahl, eroded----	10	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
Esmond, eroded----	10	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Heimdahl, slightly eroded-----	5	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J33D2: Emrick-----	5	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Slope Depth to saturated zone	0.12 0.01
J34B: Byrne-----	45	Not limited		Not limited		Somewhat limited Slope	0.12
Buse-----	35	Not limited		Not limited		Somewhat limited Slope	0.50
Buse, eroded-----	10	Not limited		Not limited		Somewhat limited Slope	0.88
Hokans-----	5	Not limited		Not limited		Somewhat limited Slope	0.12
Tara-----	5	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
J35B: Hokans-----	45	Not limited		Not limited		Somewhat limited Slope	0.12
Buse-----	30	Not limited		Not limited		Somewhat limited Slope	0.50
Barnes-----	10	Not limited		Not limited		Somewhat limited Slope	0.50
Buse, eroded-----	10	Not limited		Not limited		Somewhat limited Slope	0.88
Svea-----	5	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
J36C2: Buse, eroded-----	45	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Barnes, eroded-----	20	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Barnes, slightly eroded-----	10	Not limited		Not limited		Very limited Slope	1.00
Buse, slightly eroded-----	10	Not limited		Not limited		Very limited Slope	1.00
Darnen-----	10	Not limited		Not limited		Somewhat limited Slope	0.88
Langhei, eroded-----	5	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J37D2:							
Langhei, eroded-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Barnes, eroded-----	15	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
Buse, eroded-----	10	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Darnen-----	10	Not limited		Not limited		Somewhat limited Slope	0.88
Barnes, slightly eroded-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
J38B:							
Zell-----	41	Not limited		Not limited		Somewhat limited Slope	0.50
Eckman-----	39	Not limited		Not limited		Somewhat limited Slope	0.50
Zell, eroded-----	10	Not limited		Not limited		Somewhat limited Slope	0.50
Egeland-----	5	Not limited		Not limited		Somewhat limited Slope	0.50
Hantho-----	5	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
J38C2:							
Zell, eroded-----	45	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Eckman, eroded-----	20	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Zell, slightly eroded-----	15	Not limited		Not limited		Very limited Slope	1.00
Hantho-----	10	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
Eckman, slightly eroded-----	5	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Egeland-----	5	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
J39A:							
Udorthents-----	100	Not rated		Not rated		Not rated	

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J40A:							
Foxlake-----	85	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94
Audubon-----	5	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.01	Very limited Too clayey Restricted permeability	1.00 0.94	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.01
Calcareous soils----	5	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94
Soils in depressions	5	Very limited Depth to saturated zone Too clayey Ponding Restricted permeability	1.00 1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Ponding Restricted permeability	1.00 1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Ponding Restricted permeability	1.00 1.00 1.00 0.94
J41A:							
Urness-----	80	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Bigstone-----	10	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J42C:							
Sandberg-----	60	Somewhat limited Slope Gravel content	0.16 0.01	Somewhat limited Slope Gravel content	0.16 0.01	Very limited Slope Gravel content Content of large stones	1.00 1.00 0.01

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J42C:							
Arvilla-----	30	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Everts-----	10	Not limited		Not limited		Somewhat limited Slope	0.50
J43A:							
Quam, depressional--	30	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Restricted permeability	0.15	Restricted permeability	0.15	Restricted permeability	0.15
Cathro-----	30	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
		Content of organic matter	1.00	Content of organic matter	1.00	Ponding	1.00
Urness-----	30	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallars-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
J44B:							
Esmond-----	45	Not limited		Not limited		Somewhat limited Slope	0.12
Heimdahl-----	40	Not limited		Not limited		Somewhat limited Slope	0.50
Esmond, eroded-----	10	Not limited		Not limited		Somewhat limited Slope	0.88
Emrick-----	5	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
J44C2:							
Esmond, eroded-----	40	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Heimdahl, eroded-----	25	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J44C2: Esmond, slightly eroded-----	15	Not limited		Not limited		Very limited Slope	1.00
Heimdal, slightly eroded-----	10	Not limited		Not limited		Very limited Slope	1.00
Emrick-----	5	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Sisseton, eroded----	5	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
J45F: Sandberg-----	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Content of large stones	1.00 0.01
Everts-----	10	Not limited		Not limited		Somewhat limited Slope	0.88
Arvilla-----	5	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Sioux-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
J46B: Byrne-----	85	Not limited		Not limited		Somewhat limited Slope	0.50
Hokans-----	7	Not limited		Not limited		Somewhat limited Slope	0.50
Buse-----	5	Not limited		Not limited		Somewhat limited Slope	0.88
Quam-----	3	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J47A: Swenoda-----	85	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Clontarf-----	10	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
Egeland-----	5	Not limited		Not limited		Not limited	

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J48A:							
Bigstone-----	40	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Parnell-----	40	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Ponding Depth to saturated zone Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
Colvin-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	10	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J49A:							
Lakepark-----	50	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
Parnell, depressional-----	35	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
Emrick-----	8	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Vallers-----	7	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J50A:							
Balaton-----	45	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Tara-----	35	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J50A:							
McIntosh-----	10	Very limited Depth to saturated zone Restricted permeability	0.99  0.21	Somewhat limited Depth to saturated zone Restricted permeability	0.78  0.21	Somewhat limited Depth to saturated zone Restricted permeability	0.99  0.21
Well drained soils--	5	Not limited		Not limited		Somewhat limited Slope	0.12
Winger-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J51A:							
Bearden-----	60	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
Quam, depressional--	30	Very limited Depth to saturated zone Ponding Restricted permeability	1.00  1.00 0.21	Very limited Depth to saturated zone Ponding Restricted permeability	1.00  1.00 0.21	Very limited Depth to saturated zone Ponding Restricted permeability	1.00  1.00 0.21
Rondell-----	7	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Winger-----	3	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J52A:							
Rondell-----	85	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Zell-----	9	Not limited		Not limited		Somewhat limited Slope	0.50
Bearden-----	6	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
J53A:							
Ortonville-----	85	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Well drained soils--	10	Not limited		Not limited		Somewhat limited Slope	0.12
Vallers-----	5	Very limited Depth to saturated zone Restricted permeability	1.00  0.21	Very limited Depth to saturated zone Restricted permeability	1.00  0.21	Very limited Depth to saturated zone Restricted permeability	1.00  0.21

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J54A: Marysland, depressional-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Marysland soils that are not ponded-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J55A: Sedgeville-----	90	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding Gravel content	1.00 0.60 0.04
Soils that are frequently flooded	10	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding Gravel content	1.00 1.00 0.04
J56A: Winger-----	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Balaton-----	30	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Parnell, depressional-----	20	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J57A: Balaton-----	85	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J57A: Well drained soils--	5	Not limited		Not limited		Somewhat limited Slope	0.12
Tara-----	5	Very limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.99
Vallars-----	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
J58B: Torning-----	45	Not limited		Not limited		Somewhat limited Slope	0.50
Egeland-----	40	Not limited		Not limited		Somewhat limited Slope	0.12
Clontarf-----	10	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
Sverdrup-----	5	Not limited		Not limited		Somewhat limited Slope	0.50
J59A: Urness, sandy substratum-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Marysland-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J60B: Hattie-----	46	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.01	Very limited Too clayey Restricted permeability	1.00 0.94	Very limited Too clayey Restricted permeability Slope Depth to saturated zone	1.00 0.94 0.12 0.01
Audubon-----	44	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.01	Very limited Too clayey Restricted permeability	1.00 0.94	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.01

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J60B: Foxlake-----	10	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94
J60C: Hattie-----	60	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.01	Very limited Too clayey Restricted permeability	1.00 0.94	Very limited Slope Too clayey Restricted permeability Depth to saturated zone	1.00 1.00 0.94 0.01
Audubon-----	30	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.01	Very limited Too clayey Restricted permeability	1.00 0.94	Very limited Slope Too clayey Restricted permeability Depth to saturated zone	1.00 1.00 0.94 0.01
Foxlake-----	10	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94
J61A: Svea, bouldery-----	90	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Vallers, bouldery---	5	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
Parnell, depressional-----	5	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
J62C: Buse, very bouldery	45	Somewhat limited Too stony	0.76	Somewhat limited Too stony	0.76	Very limited Slope Too stony	1.00 0.76

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J62C: Barnes, very bouldery-----	25	Somewhat limited Too stony Slope	0.76 0.04	Somewhat limited Too stony Slope	0.76 0.04	Very limited Slope Too stony	1.00 0.76
Hokans-----	15	Somewhat limited Too stony	0.76	Somewhat limited Too stony	0.76	Somewhat limited Too stony Slope	0.76 0.12
Svea, bouldery-----	10	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Darnen-----	5	Not limited		Not limited		Somewhat limited Slope	0.50
J62F: Buse, very bouldery	50	Very limited Slope Too stony	1.00 0.76	Very limited Slope Too stony	1.00 0.76	Very limited Slope Too stony	1.00 0.76
Barnes, very bouldery-----	40	Very limited Slope Too stony	1.00 0.76	Very limited Slope Too stony	1.00 0.76	Very limited Slope Too stony	1.00 0.76
Darnen-----	10	Not limited		Not limited		Somewhat limited Slope	0.88
J63A: Ortonville-----	45	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Vallers-----	35	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressiona-----	20	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
J64A: Quam-----	90	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J64A: Quam, depressional--	5	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.21	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.21	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.21
J65A: Shakopee-----	90	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94
Soils in depressions	10	Very limited Depth to saturated zone Too clayey Ponding Restricted permeability	1.00 1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Ponding Restricted permeability	1.00 1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Ponding Restricted permeability	1.00 1.00 1.00 0.94
J66A: Emrick-----	85	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
Lakepark-----	10	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
Heimdal-----	5	Not limited		Not limited		Somewhat limited Slope	0.12
J67A: Fordtown-----	85	Not limited		Not limited		Not limited	
Renshaw-----	8	Not limited		Not limited		Not limited	
Spottswood-----	7	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.90	Very limited Depth to saturated zone	1.00
J68A: Kerkhoven-----	55	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Friberg, depressional-----	35	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00

Table 8a.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J68A: Emrick-----	10	Somewhat limited Depth to saturated zone	0.01	Not limited		Somewhat limited Depth to saturated zone	0.01
L33B: Kandiyohi-----	85	Very limited Too clayey Depth to saturated zone Restricted permeability	1.00 0.99 0.94	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.78	Very limited Too clayey Depth to saturated zone Restricted permeability Slope	1.00 0.99 0.94 0.12
Cosmos-----	10	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94
Okoboji-----	5	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
L34A: Cosmos-----	85	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Too clayey Restricted permeability	1.00 1.00 0.94
Kandiyohi-----	10	Very limited Too clayey Depth to saturated zone Restricted permeability	1.00 0.99 0.94	Very limited Too clayey Restricted permeability Depth to saturated zone	1.00 0.94 0.78	Very limited Too clayey Depth to saturated zone Restricted permeability	1.00 0.99 0.94
Okoboji-----	5	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96
M-W: Water, miscellaneous	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 8b.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GP:							
Pits, gravel-----	80	Not rated		Not rated		Not rated	
Udipsamments-----	20	Not rated		Not rated		Not rated	
J1A:							
Parnell, depressional-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J2A:							
La Prairie-----	90	Not limited		Not limited		Somewhat limited Flooding	0.60
Lamoure-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
J3A:							
Arveson-----	80	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Marysland-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Marysland, depressional-----	5	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Malachy-----	5	Not limited		Not limited		Not limited	
J4A:							
Rockwell-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J5A:</b>							
Fossum-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Droughty	1.00 0.01
Arveson-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Fossum, depressional	3	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Droughty	1.00 1.00 0.14
Hecla-----	2	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy	0.96	Somewhat limited Droughty	0.15
<b>J6A:</b>							
McDonaldsville-----	90	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00
Somewhat poorly drained soils-----	10	Very limited Too clayey Depth to saturated zone	1.00 0.50	Very limited Too clayey Depth to saturated zone	1.00 0.50	Very limited Too clayey Depth to saturated zone	1.00 0.78
<b>J7A:</b>							
Sverdrup-----	85	Not limited		Not limited		Somewhat limited Droughty	0.03
Arveson-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Clontarf-----	5	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
Egeland-----	5	Not limited		Not limited		Not limited	
<b>J7B:</b>							
Sverdrup-----	90	Not limited		Not limited		Somewhat limited Droughty	0.03
Clontarf-----	5	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
Egeland-----	5	Not limited		Not limited		Not limited	
<b>J8A:</b>							
Egeland-----	80	Not limited		Not limited		Not limited	

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J8A:</b>							
Clontarf-----	10	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
Sverdrup-----	5	Not limited		Not limited		Somewhat limited Droughty	0.03
Arveson-----	3	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Hantho-----	2	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
<b>J8B:</b>							
Egeland-----	80	Not limited		Not limited		Not limited	
Clontarf-----	8	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
Sverdrup-----	5	Not limited		Not limited		Somewhat limited Droughty	0.03
Torning-----	3	Not limited		Not limited		Not limited	
Eckman-----	2	Not limited		Not limited		Not limited	
Egeland, eroded----	2	Not limited		Not limited		Not limited	
<b>J9A:</b>							
Estelline-----	90	Not limited		Not limited		Not limited	
Soils that have a thin surface layer	10	Not limited		Not limited		Not limited	
<b>J10A:</b>							
Sinai-----	90	Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
Fulda-----	10	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00
<b>J10B:</b>							
Sinai-----	90	Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
Fulda-----	10	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J11A: Vallers-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	10	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Balaton-----	5	Not limited		Not limited		Not limited	
J12A: Marysland-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Marysland, depressional-----	3	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Malachy-----	2	Not limited		Not limited		Not limited	
J13A: Oldham-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J14F: Esmond-----	85	Somewhat limited Slope	0.98	Not limited		Very limited Slope	1.00
Emrick-----	10	Not limited		Not limited		Not limited	
Heimdal-----	5	Somewhat limited Slope	0.02	Not limited		Very limited Slope	1.00
J15B: Eckman-----	80	Not limited		Not limited		Not limited	
Eckman, eroded-----	5	Not limited		Not limited		Not limited	

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J15B:							
Egeland-----	5	Not limited		Not limited		Not limited	
Hantho-----	5	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
Zell-----	5	Not limited		Not limited		Not limited	
J16A:							
Friberg, depressional-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Kerkhoven-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J17A:							
Quam, depressional--	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J18A:							
Malachy-----	85	Not limited		Not limited		Not limited	
Arveson-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Well drained soils--	5	Not limited		Not limited		Not limited	
Clontarf-----	5	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
J19A:							
Hecla-----	80	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy	0.96	Somewhat limited Droughty	0.15
Clontarf-----	10	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
Sverdrup-----	5	Not limited		Not limited		Somewhat limited Droughty	0.03

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J19A:</b>							
Hamar-----	3	Very limited Depth to saturated zone Too sandy	1.00  0.92	Very limited Depth to saturated zone Too sandy	1.00  0.92	Very limited Depth to saturated zone Droughty	1.00  0.09
Malachy-----	2	Not limited		Not limited		Not limited	
<b>J20A:</b>							
Clontarf-----	80	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
Hecla-----	10	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy	0.96	Somewhat limited Droughty	0.15
Arveson-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Well drained soils--	5	Not limited		Not limited		Not limited	
<b>J21A:</b>							
Hamar-----	85	Very limited Depth to saturated zone Too sandy	1.00  0.92	Very limited Depth to saturated zone Too sandy	1.00  0.92	Very limited Depth to saturated zone Droughty	1.00  0.09
Less sandy soils----	8	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	4	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Hecla-----	3	Somewhat limited Too sandy	0.96	Somewhat limited Too sandy	0.96	Somewhat limited Droughty	0.15
<b>J22A:</b>							
Renshaw-----	85	Not limited		Not limited		Somewhat limited Droughty	0.03
Fordtown-----	10	Not limited		Not limited		Not limited	
Arvilla-----	3	Not limited		Not limited		Somewhat limited Droughty	0.53
Fordville-----	2	Not limited		Not limited		Not limited	
<b>J23A:</b>							
Lamoure-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00  0.60

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J23A:							
Rauville-----	10	Very limited Depth to saturated zone Flooding	1.00  0.40	Very limited Depth to saturated zone Flooding	1.00  0.40	Very limited Flooding Depth to saturated zone	1.00  1.00
La Prairie-----	5	Not limited		Not limited		Somewhat limited Flooding	0.60
J24F:							
Buse-----	85	Somewhat limited Slope	0.98	Not limited		Very limited Slope	1.00
Darnen-----	10	Not limited		Not limited		Not limited	
Barnes-----	5	Somewhat limited Slope	0.02	Not limited		Very limited Slope	1.00
J25A:							
Rauville-----	90	Very limited Depth to saturated zone Flooding	1.00  0.40	Very limited Depth to saturated zone Flooding	1.00  0.40	Very limited Flooding Depth to saturated zone	1.00  1.00
Lamoure-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00  0.60
J26B:							
Darnen-----	90	Not limited		Not limited		Not limited	
Hokans-----	5	Not limited		Not limited		Not limited	
Lakepark-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J27A:							
Hantho-----	85	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
Eckman-----	5	Not limited		Not limited		Not limited	
Quam-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Rondell-----	3	Not limited		Not limited		Not limited	
Tara-----	2	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
J28A:							
Vallers, bouldery---	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J28A: Parnell, depressional-----	10	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
J29A: Cathro-----	90	Very limited Depth to saturated zone Content of organic matter Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Content of organic matter Ponding	1.00 1.00 1.00	Very limited Content of organic matter Depth to saturated zone Ponding	1.00 1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J30A: Tara-----	90	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
Balaton-----	5	Not limited		Not limited		Not limited	
Byrne-----	3	Not limited		Not limited		Not limited	
Quam-----	2	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J31B: Arvilla-----	45	Not limited		Not limited		Somewhat limited Droughty	0.53
Sandberg-----	30	Not limited		Not limited		Very limited Droughty Gravel content Content of large stones	1.00 0.01 0.01
Renshaw-----	10	Not limited		Not limited		Somewhat limited Droughty	0.03
Sioux-----	10	Not limited		Not limited		Somewhat limited Droughty	0.51
Fordtown-----	5	Not limited		Not limited		Not limited	
J32A: Bigstone-----	80	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J32A:</b>							
Urness-----	10	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J33D2:</b>							
Sisseton, eroded----	70	Somewhat limited Slope	0.08	Not limited		Very limited Slope	1.00
Heimdal, eroded----	10	Not limited		Not limited		Somewhat limited Slope	0.96
Esmond, eroded----	10	Not limited		Not limited		Somewhat limited Slope	0.16
Heimdal, slightly eroded-----	5	Not limited		Not limited		Somewhat limited Slope	0.96
Emrick-----	5	Not limited		Not limited		Not limited	
<b>J34B:</b>							
Byrne-----	45	Not limited		Not limited		Not limited	
Buse-----	35	Not limited		Not limited		Not limited	
Buse, eroded-----	10	Not limited		Not limited		Not limited	
Hokans-----	5	Not limited		Not limited		Not limited	
Tara-----	5	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
<b>J35B:</b>							
Hokans-----	45	Not limited		Not limited		Not limited	
Buse-----	30	Not limited		Not limited		Not limited	
Barnes-----	10	Not limited		Not limited		Not limited	
Buse, eroded-----	10	Not limited		Not limited		Not limited	
Svea-----	5	Not limited		Not limited		Not limited	
<b>J36C2:</b>							
Buse, eroded-----	45	Not limited		Not limited		Somewhat limited Slope	0.16

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J36C2:</b>							
Barnes, eroded-----	20	Not limited		Not limited		Somewhat limited Slope	0.16
Barnes, slightly eroded-----	10	Not limited		Not limited		Not limited	
Buse, slightly eroded-----	10	Not limited		Not limited		Not limited	
Darnen-----	10	Not limited		Not limited		Not limited	
Langhei, eroded-----	5	Not limited		Not limited		Somewhat limited Slope	0.96
<b>J37D2:</b>							
Langhei, eroded-----	60	Somewhat limited Slope	0.08	Not limited		Very limited Slope	1.00
Barnes, eroded-----	15	Not limited		Not limited		Somewhat limited Slope	0.96
Buse, eroded-----	10	Somewhat limited Slope	0.08	Not limited		Very limited Slope	1.00
Darnen-----	10	Not limited		Not limited		Not limited	
Barnes, slightly eroded-----	5	Somewhat limited Slope	0.08	Not limited		Very limited Slope	1.00
<b>J38B:</b>							
Zell-----	41	Not limited		Not limited		Not limited	
Eckman-----	39	Not limited		Not limited		Not limited	
Zell, eroded-----	10	Not limited		Not limited		Not limited	
Egeland-----	5	Not limited		Not limited		Not limited	
Hantho-----	5	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
<b>J38C2:</b>							
Zell, eroded-----	45	Not limited		Not limited		Somewhat limited Slope	0.16
Eckman, eroded-----	20	Not limited		Not limited		Somewhat limited Slope	0.16
Zell, slightly eroded-----	15	Not limited		Not limited		Not limited	
Hantho-----	10	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J38C2: Eckman, slightly eroded-----	5	Not limited		Not limited		Somewhat limited Slope	0.16
Egeland-----	5	Not limited		Not limited		Somewhat limited Slope	0.16
J39A: Udorthents-----	100	Not rated		Not rated		Not rated	
J40A: Foxlake-----	85	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00
Audubon-----	5	Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
Calcareous soils----	5	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00
Soils in depressions	5	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00
J41A: Urness-----	80	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Bigstone-----	10	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J42C: Sandberg-----	60	Not limited		Not limited		Very limited Droughty Slope Gravel content Content of large stones	1.00 0.16 0.01 0.01

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J42C:							
Arvilla-----	30	Not limited		Not limited		Somewhat limited Droughty Slope	0.53 0.16
Everts-----	10	Not limited		Not limited		Not limited	
J43A:							
Quam, depression--	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Cathro-----	30	Very limited Depth to saturated zone Content of organic matter Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Content of organic matter Ponding	1.00 1.00 1.00	Very limited Ponding Content of organic matter Depth to saturated zone	1.00 1.00 1.00
Urness-----	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J44B:							
Esmond-----	45	Not limited		Not limited		Not limited	
Heimdal-----	40	Not limited		Not limited		Not limited	
Esmond, eroded----	10	Not limited		Not limited		Not limited	
Emrick-----	5	Not limited		Not limited		Not limited	
J44C2:							
Esmond, eroded----	40	Not limited		Not limited		Somewhat limited Slope	0.16
Heimdal, eroded----	25	Not limited		Not limited		Somewhat limited Slope	0.16
Esmond, slightly eroded-----	15	Not limited		Not limited		Not limited	
Heimdal, slightly eroded-----	10	Not limited		Not limited		Not limited	
Emrick-----	5	Not limited		Not limited		Not limited	
Sisseton, eroded----	5	Not limited		Not limited		Somewhat limited Slope	0.96

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J45F:							
Sandberg-----	80	Somewhat limited Slope	0.50	Not limited		Very limited Slope Droughty Content of large stones	1.00 0.69 0.01
Everts-----	10	Not limited		Not limited		Not limited	
Arvilla-----	5	Not limited		Not limited		Somewhat limited Droughty Slope	0.53 0.16
Sioux-----	5	Somewhat limited Slope	0.50	Not limited		Very limited Slope Droughty	1.00 0.51
J46B:							
Byrne-----	85	Not limited		Not limited		Not limited	
Hokans-----	7	Not limited		Not limited		Not limited	
Buse-----	5	Not limited		Not limited		Not limited	
Quam-----	3	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J47A:							
Swenoda-----	85	Not limited		Not limited		Not limited	
Clontarf-----	10	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
Egeland-----	5	Not limited		Not limited		Not limited	
J48A:							
Bigstone-----	40	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Parnell-----	40	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Colvin-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J49A:</b>							
Lakepark-----	50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	35	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Emrick-----	8	Not limited		Not limited		Not limited	
Vallers-----	7	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J50A:</b>							
Balaton-----	45	Not limited		Not limited		Not limited	
Tara-----	35	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
McIntosh-----	10	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
Well drained soils--	5	Not limited		Not limited		Not limited	
Winger-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J51A:</b>							
Bearden-----	60	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
Quam, depressional--	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Rondell-----	7	Not limited		Not limited		Not limited	
Winger-----	3	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J52A:</b>							
Rondell-----	85	Not limited		Not limited		Not limited	
Zell-----	9	Not limited		Not limited		Not limited	
Bearden-----	6	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J53A:							
Ortonville-----	85	Not limited		Not limited		Not limited	
Well drained soils--	10	Not limited		Not limited		Not limited	
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J54A:							
Marysland, depressional-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Marysland soils that are not ponded-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J55A:							
Sedgeville-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
Soils that are frequently flooded	10	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00
J56A:							
Winger-----	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Balaton-----	30	Not limited		Not limited		Not limited	
Parnell, depressional-----	20	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J57A:							
Balaton-----	85	Not limited		Not limited		Not limited	
Well drained soils--	5	Not limited		Not limited		Not limited	

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J57A:</b>							
Tara-----	5	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.50	Somewhat limited Depth to saturated zone	0.78
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J58B:</b>							
Torning-----	45	Not limited		Not limited		Not limited	
Egeland-----	40	Not limited		Not limited		Not limited	
Clontarf-----	10	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
Sverdrup-----	5	Not limited		Not limited		Somewhat limited Droughty	0.03
<b>J59A:</b>							
Urness, sandy substratum-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Marysland-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J60B:</b>							
Hattie-----	46	Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
Audubon-----	44	Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
Foxlake-----	10	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00
<b>J60C:</b>							
Hattie-----	60	Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
Audubon-----	30	Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
Foxlake-----	10	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J61A:							
Svea, bouldery-----	90	Not limited		Not limited		Not limited	
Vallers, bouldery---	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	5	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
J62C:							
Buse, very bouldery	45	Somewhat limited Too stony	0.76	Somewhat limited Too stony	0.76	Not limited	
Barnes, very bouldery-----	25	Somewhat limited Too stony	0.76	Somewhat limited Too stony	0.76	Somewhat limited Slope	0.04
Hokans-----	15	Somewhat limited Too stony	0.76	Somewhat limited Too stony	0.76	Not limited	
Svea, bouldery-----	10	Not limited		Not limited		Not limited	
Darnen-----	5	Not limited		Not limited		Not limited	
J62F:							
Buse, very bouldery	50	Somewhat limited Slope Too stony	0.98 0.76	Somewhat limited Too stony	0.76	Very limited Slope	1.00
Barnes, very bouldery-----	40	Somewhat limited Slope Too stony	0.98 0.76	Somewhat limited Too stony	0.76	Very limited Slope	1.00
Darnen-----	10	Not limited		Not limited		Not limited	
J63A:							
Ortonville-----	45	Not limited		Not limited		Not limited	
Vallers-----	35	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	20	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
J64A:							
Quam-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J64A: Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Quam, depression--	5	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
J65A: Shakopee-----	90	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00
Soils in depressions	10	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00
J66A: Emrick-----	85	Not limited		Not limited		Not limited	
Lakepark-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Heimdal-----	5	Not limited		Not limited		Not limited	
J67A: Fordtown-----	85	Not limited		Not limited		Not limited	
Renshaw-----	8	Not limited		Not limited		Somewhat limited Droughty	0.03
Spottswood-----	7	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.78	Somewhat limited Depth to saturated zone	0.90
J68A: Kerkhoven-----	55	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Friberg, depressional-----	35	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Emrick-----	10	Not limited		Not limited		Not limited	
L33B: Kandiyohi-----	85	Very limited Too clayey Depth to saturated zone	1.00 0.50	Very limited Too clayey Depth to saturated zone	1.00 0.50	Very limited Too clayey Depth to saturated zone	1.00 0.78

Table 8b.--Recreation--Continued

Map symbol and component name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
L33B:							
Cosmos-----	10	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00
Okoboji-----	5	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
L34A:							
Cosmos-----	85	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 1.00
Kandiyohi-----	10	Very limited Too clayey Depth to saturated zone	1.00 0.50	Very limited Too clayey Depth to saturated zone	1.00 0.50	Very limited Too clayey Depth to saturated zone	1.00 0.78
Okoboji-----	5	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
M-W:							
Water, miscellaneous	100	Not rated		Not rated		Not rated	
W:							
Water-----	100	Not rated		Not rated		Not rated	

Table 9.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--			
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	
GP:												
Pits, gravel-----	80	---	---	---	---	---	---	---	---	---	---	---
Udipsamments-----	20	---	---	---	---	---	---	---	---	---	---	---
J1A:												
Parnell, depressional---	90	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Colvin-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
J2A:												
La Prairie-----	90	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Fair	
Lamoure-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
J3A:												
Arveson-----	80	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Marysland-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Marysland, depressional	5	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Malachy-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Fair	
J4A:												
Rockwell-----	90	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Arveson-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
J5A:												
Fossum-----	85	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Arveson-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Fossum, depressional---	3	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Hecla-----	2	Poor	Good	Good	Poor	Poor	Fair	Very poor	Fair	Poor	Poor	
J6A:												
McDonaldsville-----	90	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Somewhat poorly drained soils-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
J7A:												
Sverdrup-----	85	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor	
Arveson-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Clontarf-----	5	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor	
Egeland-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor	

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
J7B:											
Sverdrup-----	90	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Clontarf-----	5	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Egeland-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
J8A:											
Egeland-----	80	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Clontarf-----	10	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Sverdrup-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Arveson-----	3	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Hantho-----	2	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
J8B:											
Egeland-----	80	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Clontarf-----	8	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Sverdrup-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Torning-----	3	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Eckman-----	2	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Egeland, eroded-----	2	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
J9A:											
Estelline-----	90	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Soils that have a thin surface layer-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
J10A:											
Sinai-----	90	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Fulda-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
J10B:											
Sinai-----	90	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Fulda-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
<b>J11A:</b>											
Vallers-----	85	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Parnell, depressiona---	10	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Balaton-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
<b>J12A:</b>											
Marysland-----	85	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Arveson-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Marysland, depressiona	3	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Malachy-----	2	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Fair
<b>J13A:</b>											
Oldham-----	90	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Colvin-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J14F:</b>											
Esmond-----	85	Very poor	Very poor	Good	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
Emrick-----	10	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Heimdal-----	5	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
<b>J15B:</b>											
Eckman-----	80	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Eckman, eroded-----	5	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Egeland-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Hantho-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Zell-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
<b>J16A:</b>											
Friberg, depressiona---	90	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Kerkhoven-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J17A:</b>											
Quam, depressiona---	90	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Colvin-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
<b>J18A:</b>											
Malachy-----	85	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Fair
Arveson-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Well drained soils-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Clontarf-----	5	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
<b>J19A:</b>											
Hecla-----	80	Poor	Good	Good	Poor	Poor	Fair	Very poor	Fair	Poor	Poor
Clontarf-----	10	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Sverdrup-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Hamar-----	3	Poor	Good	Good	Poor	Poor	Good	Good	Fair	Poor	Good
Malachy-----	2	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Fair
<b>J20A:</b>											
Clontarf-----	80	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Hecla-----	10	Poor	Good	Good	Poor	Poor	Fair	Very poor	Fair	Poor	Poor
Arveson-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Well drained soils-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
<b>J21A:</b>											
Hamar-----	85	Poor	Good	Good	Poor	Poor	Good	Good	Fair	Poor	Good
Less sandy soils-----	8	Poor	Good	Good	Poor	Poor	Good	Good	Fair	Poor	Good
Arveson-----	4	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Hecla-----	3	Poor	Good	Good	Poor	Poor	Fair	Very poor	Fair	Poor	Poor
<b>J22A:</b>											
Renshaw-----	85	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Fordtown-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Arvilla-----	3	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Fordville-----	2	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
<b>J23A:</b>											
Lamoure-----	85	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Rauville-----	10	Very poor	Fair	Good	Poor	Poor	Good	Good	Poor	Poor	Good
La Prairie-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Fair
<b>J24F:</b>											
Buse-----	85	Very poor	Very poor	Good	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
Darnen-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Barnes-----	5	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
<b>J25A:</b>											
Rauville-----	90	Very poor	Fair	Good	Poor	Poor	Good	Good	Poor	Poor	Good
Lamoure-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J26B:</b>											
Darnen-----	90	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Hokans-----	5	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Lakepark-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J27A:</b>											
Hantho-----	85	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Eckman-----	5	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Quam-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Rondell-----	3	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Tara-----	2	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
<b>J28A:</b>											
Vallers, bouldery-----	90	Very poor	Fair	Good	Poor	Poor	Good	Good	Poor	Poor	Good
Parnell, depressiona---	10	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J29A:</b>											
Cathro-----	90	Poor	Good	Good	Poor	Poor	Good	Good	Fair	Poor	Good
Colvin-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
<b>J30A:</b>											
Tara-----	90	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Balaton-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Byrne-----	3	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Quam-----	2	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J31B:</b>											
Arvilla-----	45	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Sandberg-----	30	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Renshaw-----	10	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Sioux-----	10	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Fordtown-----	5	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
<b>J32A:</b>											
Bigstone-----	80	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Urness-----	10	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Colvin-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J33D2:</b>											
Sisseton, eroded-----	70	Very poor	Very poor	Good	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Heimdal, eroded-----	10	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Esmond, eroded-----	10	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Heimdal, slightly eroded	5	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Emrick-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
<b>J34B:</b>											
Byrne-----	45	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Buse-----	35	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Buse, eroded-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wild-life	Woodland wild-life	Wetland wild-life
<b>J34B:</b>											
Hokans-----	5	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Tara-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
<b>J35B:</b>											
Hokans-----	45	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Buse-----	30	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Barnes-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Buse, eroded-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Svea-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
<b>J36C2:</b>											
Buse, eroded-----	45	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Barnes, eroded-----	20	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Barnes, slightly eroded	10	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Buse, slightly eroded---	10	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Darnen-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Langhei, eroded-----	5	Poor	Fair	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
<b>J37D2:</b>											
Langhei, eroded-----	60	Very poor	Fair	Good	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Barnes, eroded-----	15	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Buse, eroded-----	10	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Darnen-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Barnes, slightly eroded	5	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
<b>J38B:</b>											
Zell-----	41	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
J38B:											
Eckman-----	39	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Zell, eroded-----	10	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Egeland-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Hantho-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
J38C2:											
Zell, eroded-----	45	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Eckman, eroded-----	20	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Zell, slightly eroded---	15	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Hantho-----	10	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Eckman, slightly eroded	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Egeland-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
J39A:											
Udorthents-----	100	---	---	---	---	---	---	---	---	---	---
J40A:											
Foxlake-----	85	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Audubon-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Calcareous soils-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Soils in depressions---	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
J41A:											
Urness-----	80	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Bigstone-----	10	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Colvin-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
J42C:											
Sandberg-----	60	Very poor	Fair	Good	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Arvilla-----	30	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Everts-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
<b>J43A:</b>											
Quam, depressional-----	30	Very poor	Very poor	Good	Poor	Poor	Good	Good	Very poor	Poor	Good
Cathro-----	30	Very poor	Very poor	Good	Poor	Poor	Good	Good	Very poor	Poor	Good
Urness-----	30	Very poor	Very poor	Good	Poor	Poor	Good	Good	Very poor	Poor	Good
Colvin-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J44B:</b>											
Esmond-----	45	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Heimdal-----	40	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Esmond, eroded-----	10	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Emrick-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
<b>J44C2:</b>											
Esmond, eroded-----	40	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Heimdal, eroded-----	25	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Esmond, slightly eroded	15	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Heimdal, slightly eroded	10	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Emrick-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Sisseton, eroded-----	5	Very poor	Very poor	Good	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
<b>J45F:</b>											
Sandberg-----	80	Very poor	Very poor	Good	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
Everts-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Arvilla-----	5	Poor	Good	Good	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Sioux-----	5	Very poor	Very poor	Good	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--			
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	
<b>J46B:</b>												
Byrne-----	85	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor	
Hokans-----	7	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor	
Buse-----	5	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor	
Quam-----	3	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
<b>J47A:</b>												
Swenoda-----	85	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor	
Clontarf-----	10	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor	
Egeland-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor	
<b>J48A:</b>												
Bigstone-----	40	Very poor	Very poor	Good	Poor	Poor	Good	Good	Very poor	Poor	Good	
Parnell-----	40	Very poor	Very poor	Good	Poor	Poor	Good	Good	Very poor	Poor	Good	
Colvin-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Vallers-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
<b>J49A:</b>												
Lakepark-----	50	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Parnell, depressiona---	35	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
Emrick-----	8	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor	
Vallers-----	7	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
<b>J50A:</b>												
Balaton-----	45	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor	
Tara-----	35	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor	
McIntosh-----	10	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor	
Well drained soils-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor	
Winger-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good	
<b>J51A:</b>												
Bearden-----	60	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor	

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
<b>J51A:</b>											
Quam, depressional-----	30	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Rondell-----	7	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Winger-----	3	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J52A:</b>											
Rondell-----	85	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Zell-----	9	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Bearden-----	6	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
<b>J53A:</b>											
Ortonville-----	85	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Well drained soils-----	10	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J54A:</b>											
Marysland, depressional	90	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Marysland soils that are not ponded-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J55A:</b>											
Sedgeville-----	90	Poor	Good	Good	Poor	Poor	Good	Good	Fair	Poor	Good
Soils that are frequently flooded-----	10	Very poor	Good	Good	Poor	Poor	Good	Good	Poor	Poor	Good
<b>J56A:</b>											
Winger-----	40	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Balaton-----	30	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Parnell, depressional---	20	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Colvin-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J57A:</b>											
Balaton-----	85	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Well drained soils-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Tara-----	5	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Vallers-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
J58B:											
Torning-----	45	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Egeland-----	40	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Clontarf-----	10	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Sverdrup-----	5	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
J59A:											
Urness, sandy substratum	90	Very poor	Very poor	Good	Poor	Poor	Good	Good	Very poor	Poor	Good
Marysland-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
J60B:											
Hattie-----	46	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Audubon-----	44	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Foxlake-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
J60C:											
Hattie-----	60	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Audubon-----	30	Fair	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Foxlake-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
J61A:											
Svea, bouldery-----	90	Very poor	Fair	Good	Poor	Poor	Fair	Very poor	Poor	Poor	Poor
Vallers, bouldery-----	5	Very poor	Fair	Good	Poor	Poor	Good	Good	Poor	Poor	Good
Parnell, depressional---	5	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
J62C:											
Buse, very bouldery----	45	Very poor	Fair	Good	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Barnes, very bouldery---	25	Very poor	Fair	Good	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Hokans-----	15	Very poor	Fair	Good	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Svea, bouldery-----	10	Very poor	Fair	Good	Poor	Poor	Fair	Very poor	Poor	Poor	Poor
Darnen-----	5	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and component name	Pct. of map unit	Potential for habitat elements							Potential as habitat for--		
		Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
<b>J62F:</b>											
Buse, very bouldery----	50	Very poor	Very poor	Good	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
Barnes, very bouldery---	40	Very poor	Very poor	Good	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Darnen-----	10	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
<b>J63A:</b>											
Ortonville-----	45	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Vallers-----	35	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Parnell, depressiona---	20	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J64A:</b>											
Quam-----	90	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Colvin-----	5	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Quam, depressiona---	5	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J65A:</b>											
Shakopee-----	90	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Soils in depressions---	10	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
<b>J66A:</b>											
Emrick-----	85	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Lakepark-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Heimdal-----	5	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
<b>J67A:</b>											
Fordtown-----	85	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Renshaw-----	8	Fair	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
Spottswood-----	7	Good	Good	Good	Poor	Poor	Very poor	Very poor	Good	Poor	Very poor
<b>J68A:</b>											
Kerkhoven-----	55	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Friberg, depressiona---	35	Fair	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good
Emrick-----	10	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
<b>L33B:</b>											
Kandiyohi-----	85	Good	Good	Good	Poor	Poor	Fair	Very poor	Good	Poor	Poor
Cosmos-----	10	Good	Good	Good	Poor	Poor	Good	Good	Good	Poor	Good



Table 10a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component name	Pct. of map unit	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
GP:							
Pits, gravel-----	80	Not rated		Not rated		Not rated	
Udipsamments-----	20	Not rated		Not rated		Not rated	
J1A:							
Parnell, depressiona-----	90	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J2A:							
La Prairie-----	90	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.01 0.01	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.01 0.01
Lamoure-----	10	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.38	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.01	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.38
J3A:							
Arveson-----	80	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Marysland-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Marysland, depressiona-----	5	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Malachy-----	5	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J4A:							
Rockwell-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J5A:							
Fossum-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Fossum, depressional	3	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Hecla-----	2	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
J6A:							
McDonaldsville-----	90	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
Somewhat poorly drained soils-----	10	Very limited Shrink-swell Depth to saturated zone	1.00 0.99	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.99
J7A:							
Sverdrup-----	85	Not limited		Not limited		Not limited	
Arveson-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Clontarf-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Egeland-----	5	Not limited		Not limited		Not limited	
J7B:							
Sverdrup-----	90	Not limited		Not limited		Not limited	
Clontarf-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Egeland-----	5	Not limited		Not limited		Not limited	

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
<b>J8A:</b>							
Egeland-----	80	Not limited		Not limited		Not limited	
Clontarf-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Sverdrup-----	5	Not limited		Not limited		Not limited	
Arveson-----	3	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Hantho-----	2	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
<b>J8B:</b>							
Egeland-----	80	Not limited		Not limited		Not limited	
Clontarf-----	8	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Sverdrup-----	5	Not limited		Not limited		Somewhat limited Slope	0.12
Torning-----	3	Not limited		Not limited		Somewhat limited Slope	0.12
Eckman-----	2	Not limited		Not limited		Not limited	
Egeland, eroded----	2	Not limited		Not limited		Somewhat limited Slope	0.12
<b>J9A:</b>							
Estelline-----	90	Not limited		Not limited		Not limited	
Soils that have a thin surface layer	10	Not limited		Not limited		Not limited	
<b>J10A:</b>							
Sinai-----	90	Very limited Shrink-swell Depth to saturated zone	1.00 0.01	Very limited Shrink-swell Depth to saturated zone	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.01
Fulda-----	10	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
<b>J10B:</b>							
Sinai-----	90	Very limited Shrink-swell Depth to saturated zone	1.00 0.01	Very limited Shrink-swell Depth to saturated zone	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.01

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J10B: Fulda-----	10	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
J11A: Vallars-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	10	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00
Balaton-----	5	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
J12A: Marysland-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Marysland, depressional-----	3	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Malachy-----	2	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
J13A: Oldham-----	90	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.32	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallars-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J14F: Esmond-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
<b>J14F:</b>							
Emrick-----	10	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Slope Depth to saturated zone	0.12 0.01
Heimdal-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
<b>J15B:</b>							
Eckman-----	80	Not limited		Not limited		Not limited	
Eckman, eroded-----	5	Not limited		Not limited		Not limited	
Egeland-----	5	Not limited		Not limited		Not limited	
Hantho-----	5	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
Zell-----	5	Not limited		Not limited		Not limited	
<b>J16A:</b>							
Friberg, depressional-----	90	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11
Kerkhoven-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J17A:</b>							
Quam, depressional--	90	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J18A:</b>							
Malachy-----	85	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Arveson-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J18A: Well drained soils--	5	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Clontarf-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J19A: Hecla-----	80	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Clontarf-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Sverdrup-----	5	Not limited		Not limited		Not limited	
Hamar-----	3	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Malachy-----	2	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
J20A: Clontarf-----	80	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Hecla-----	10	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Arveson-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Well drained soils--	5	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
J21A: Hamar-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Less sandy soils----	8	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Arveson-----	4	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Hecla-----	3	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
<b>J22A:</b>							
Renshaw-----	85	Not limited		Not limited		Not limited	
Fordtown-----	10	Not limited		Somewhat limited Depth to saturated zone	0.78	Not limited	
Arvilla-----	3	Not limited		Not limited		Not limited	
Fordville-----	2	Not limited		Not limited		Not limited	
<b>J23A:</b>							
Lamoure-----	85	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.38	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.01	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.38
Rauville-----	10	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.68	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50
La Prairie-----	5	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.01 0.01	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.01 0.01
<b>J24F:</b>							
Buse-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Darnen-----	10	Not limited		Somewhat limited Depth to saturated zone	0.64	Somewhat limited Slope	0.12
Barnes-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
<b>J25A:</b>							
Rauville-----	90	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.68	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50
Lamoure-----	10	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.38	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.01	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.38
<b>J26B:</b>							
Darnen-----	90	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J26B: Hokans-----	5	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Lakepark-----	5	Very limited Depth to saturated zone Shrink-swell	1.00 0.02	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00 0.02
J27A: Hantho-----	85	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
Eckman-----	5	Not limited		Not limited		Not limited	
Quam-----	5	Very limited Depth to saturated zone Shrink-swell	1.00 0.11	Very limited Depth to saturated zone Shrink-swell	1.00 0.11	Very limited Depth to saturated zone Shrink-swell	1.00 0.11
Rondell-----	3	Somewhat limited Shrink-swell Depth to saturated zone	0.01 0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Shrink-swell Depth to saturated zone	0.01 0.01
Tara-----	2	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
J28A: Vallers, bouldery---	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	10	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00
J29A: Cathro-----	90	Very limited Subsidence Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Subsidence Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Subsidence Depth to saturated zone Ponding	1.00 1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
<b>J30A:</b>							
Tara-----	90	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
Balaton-----	5	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Byrne-----	3	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Quam-----	2	Very limited Depth to saturated zone Shrink-swell	1.00 0.11	Very limited Depth to saturated zone Shrink-swell	1.00 0.11	Very limited Depth to saturated zone Shrink-swell	1.00 0.11
<b>J31B:</b>							
Arvilla-----	45	Not limited		Not limited		Not limited	
Sandberg-----	30	Not limited		Not limited		Not limited	
Renshaw-----	10	Not limited		Not limited		Not limited	
Sioux-----	10	Not limited		Not limited		Somewhat limited Slope	0.12
Fordtown-----	5	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
<b>J32A:</b>							
Bigstone-----	80	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.02	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.02
Urness-----	10	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.01	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.01
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J33D2:</b>							
Sisseton, eroded----	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Heimdahl, eroded----	10	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J33D2: Esmond, eroded-----	10	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Heimdal, slightly eroded-----	5	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
Emrick-----	5	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
J34B: Byrne-----	45	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Buse-----	35	Not limited		Not limited		Not limited	
Buse, eroded-----	10	Not limited		Not limited		Somewhat limited Slope	0.12
Hokans-----	5	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Tara-----	5	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
J35B: Hokans-----	45	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Buse-----	30	Not limited		Not limited		Not limited	
Barnes-----	10	Not limited		Not limited		Not limited	
Buse, eroded-----	10	Not limited		Not limited		Somewhat limited Slope	0.12
Svea-----	5	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
J36C2: Buse, eroded-----	45	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Barnes, eroded-----	20	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Barnes, slightly eroded-----	10	Not limited		Not limited		Very limited Slope	1.00
Buse, slightly eroded-----	10	Not limited		Not limited		Very limited Slope	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J36C2:							
Darnen-----	10	Not limited		Somewhat limited Depth to saturated zone	0.64	Somewhat limited Slope	0.12
Langhei, eroded----	5	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
J37D2:							
Langhei, eroded----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Barnes, eroded-----	15	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
Buse, eroded-----	10	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Darnen-----	10	Not limited		Somewhat limited Depth to saturated zone	0.64	Somewhat limited Slope	0.12
Barnes, slightly eroded-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
J38B:							
Zell-----	41	Not limited		Not limited		Not limited	
Eckman-----	39	Not limited		Not limited		Not limited	
Zell, eroded-----	10	Not limited		Not limited		Not limited	
Egeland-----	5	Not limited		Not limited		Not limited	
Hantho-----	5	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
J38C2:							
Zell, eroded-----	45	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Eckman, eroded-----	20	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Zell, slightly eroded-----	15	Not limited		Not limited		Very limited Slope	1.00
Hantho-----	10	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
Eckman, slightly eroded-----	5	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Egeland-----	5	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J39A: Udorthents-----	100	Not rated		Not rated		Not rated	
J40A: Foxlake-----	85	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
Audubon-----	5	Very limited Shrink-swell Depth to saturated zone	1.00 0.01	Very limited Shrink-swell Depth to saturated zone	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.01
Calcareous soils----	5	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
Soils in depressions	5	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00
J41A: Urness-----	80	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.01	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.01
Bigstone-----	10	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.02	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.02
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J42C: Sandberg-----	60	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Arvilla-----	30	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Everts-----	10	Not limited		Not limited		Not limited	
J43A: Quam, depressiona--	30	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
<b>J43A:</b>							
Cathro-----	30	Very limited Ponding Depth to saturated zone Content of organic matter	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Content of organic matter	1.00 1.00 1.00
Urness-----	30	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.01	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.01
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J44B:</b>							
Esmond-----	45	Not limited		Not limited		Not limited	
Heimdal-----	40	Not limited		Not limited		Not limited	
Esmond, eroded-----	10	Not limited		Not limited		Somewhat limited Slope	0.12
Emrick-----	5	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
<b>J44C2:</b>							
Esmond, eroded-----	40	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Heimdal, eroded-----	25	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Esmond, slightly eroded-----	15	Not limited		Not limited		Very limited Slope	1.00
Heimdal, slightly eroded-----	10	Not limited		Not limited		Very limited Slope	1.00
Emrick-----	5	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Sisseton, eroded----	5	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
<b>J45F:</b>							
Sandberg-----	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J45F: Everts-----	10	Not limited		Not limited		Somewhat limited Slope	0.12
Arvilla-----	5	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Sioux-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
J46B: Byrne-----	85	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Hokans-----	7	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Buse-----	5	Not limited		Not limited		Somewhat limited Slope	0.12
Quam-----	3	Very limited Depth to saturated zone Shrink-swell	1.00 0.11	Very limited Depth to saturated zone Shrink-swell	1.00 0.11	Very limited Depth to saturated zone Shrink-swell	1.00 0.11
J47A: Swenoda-----	85	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone Shrink-swell	1.00 0.02	Somewhat limited Depth to saturated zone	0.01
Clontarf-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Egeland-----	5	Not limited		Not limited		Not limited	
J48A: Bigstone-----	40	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.02	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.02	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.02
Parnell-----	40	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
Colvin-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J49A:							
Lakepark-----	50	Very limited Depth to saturated zone Shrink-swell	1.00  0.02	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00  0.02
Parnell, depressional-----	35	Very limited Depth to saturated zone Shrink-swell Ponding	1.00  1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00  1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00  1.00 1.00
Emrick-----	8	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Vallers-----	7	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J50A:							
Balaton-----	45	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Tara-----	35	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
McIntosh-----	10	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
Well drained soils--	5	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Winger-----	5	Very limited Depth to saturated zone Shrink-swell	1.00  0.01	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00  0.01
J51A:							
Bearden-----	60	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
Quam, depressional--	30	Very limited Depth to saturated zone Ponding Shrink-swell	1.00  1.00 0.56	Very limited Depth to saturated zone Ponding Shrink-swell	1.00  1.00 0.02	Very limited Depth to saturated zone Ponding Shrink-swell	1.00  1.00 0.56
Rondell-----	7	Somewhat limited Shrink-swell Depth to saturated zone	0.01  0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Shrink-swell Depth to saturated zone	0.01  0.01

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J51A: Winger-----	3	Very limited Depth to saturated zone Shrink-swell	1.00 0.01	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00 0.01
J52A: Rondell-----	85	Somewhat limited Shrink-swell Depth to saturated zone	0.01 0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Shrink-swell Depth to saturated zone	0.01 0.01
Zell-----	9	Not limited		Not limited		Not limited	
Bearden-----	6	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
J53A: Ortonville-----	85	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Well drained soils--	10	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J54A: Marysland, depressional-----	90	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Marysland soils that are not ponded-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J55A: Sedgeville-----	90	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
Soils that are frequently flooded	10	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
J56A: Winger-----	40	Very limited Depth to saturated zone Shrink-swell	1.00 0.01	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00 0.01

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J56A:							
Balaton-----	30	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Parnell, depressional-----	20	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J57A:							
Balaton-----	85	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Well drained soils--	5	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Tara-----	5	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J58B:							
Torning-----	45	Not limited		Not limited		Not limited	
Egeland-----	40	Not limited		Not limited		Not limited	
Clontarf-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Sverdrup-----	5	Not limited		Not limited		Not limited	
J59A:							
Urness, sandy substratum-----	90	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Marysland-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
<b>J60B:</b>							
Hattie-----	46	Very limited Shrink-swell Depth to saturated zone	1.00 0.01	Very limited Shrink-swell Depth to saturated zone	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.01
Audubon-----	44	Very limited Shrink-swell Depth to saturated zone	1.00 0.01	Very limited Shrink-swell Depth to saturated zone	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.01
Foxlake-----	10	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
<b>J60C:</b>							
Hattie-----	60	Very limited Shrink-swell Depth to saturated zone	1.00 0.01	Very limited Shrink-swell Depth to saturated zone	1.00 1.00	Very limited Shrink-swell Slope Depth to saturated zone	1.00 0.88 0.01
Audubon-----	30	Very limited Shrink-swell Depth to saturated zone	1.00 0.01	Very limited Shrink-swell Depth to saturated zone	1.00 1.00	Very limited Shrink-swell Slope Depth to saturated zone	1.00 0.88 0.01
Foxlake-----	10	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
<b>J61A:</b>							
Svea, bouldery----	90	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Vallers, bouldery---	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	5	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00
<b>J62C:</b>							
Buse, very bouldery	45	Not limited		Not limited		Somewhat limited Slope	0.50
Barnes, very bouldery-----	25	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J62C: Hokans-----	15	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Svea, bouldery-----	10	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Darnen-----	5	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
J62F: Buse, very bouldery	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Barnes, very bouldery-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Darnen-----	10	Not limited		Somewhat limited Depth to saturated zone	0.64	Somewhat limited Slope	0.12
J63A: Ortonville-----	45	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Vallers-----	35	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressiona-----	20	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00
J64A: Quam-----	90	Very limited Depth to saturated zone Shrink-swell	1.00 0.11	Very limited Depth to saturated zone Shrink-swell	1.00 0.11	Very limited Depth to saturated zone Shrink-swell	1.00 0.11
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Quam, depressiona--	5	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
J65A: Shakopee-----	90	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
Soils in depressions	10	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00
J66A: Emrick-----	85	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
Lakepark-----	10	Very limited Depth to saturated zone Shrink-swell	1.00 0.02	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Shrink-swell	1.00 0.02
Heimdal-----	5	Not limited		Not limited		Not limited	
J67A: Fordtown-----	85	Not limited		Somewhat limited Depth to saturated zone	0.64	Not limited	
Renshaw-----	8	Not limited		Not limited		Not limited	
Spottswood-----	7	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J68A: Kerkhoven-----	55	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Friberg, depressional-----	35	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Shrink-swell	1.00 1.00 0.11
Emrick-----	10	Somewhat limited Depth to saturated zone	0.01	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.01
L33B: Kandiyohi-----	85	Very limited Shrink-swell Depth to saturated zone	1.00 0.99	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.99
Cosmos-----	10	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00

Table 10a.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	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
L33B:							
Okoboji-----	5	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	Shrink-swell	1.00	Ponding	1.00
		Shrink-swell	0.86	Ponding	1.00	Shrink-swell	0.86
L34A:							
Cosmos-----	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Kandiyohi-----	10	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.99	Shrink-swell	1.00	Depth to saturated zone	0.99
Okoboji-----	5	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	Shrink-swell	1.00	Ponding	1.00
		Shrink-swell	0.86	Ponding	1.00	Shrink-swell	0.86
M-W:							
Water, miscellaneous	100	Not rated		Not rated		Not rated	
W:							
Water-----	100	Not rated		Not rated		Not rated	

Table 10b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GP:							
Pits, gravel-----	80	Not rated		Not rated		Not rated	
Udipsamments-----	20	Not rated		Not rated		Not rated	
J1A:							
Parnell, depressional-----	90	Very limited Depth to saturated zone Frost action Low strength Shrink-swell Ponding	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
J2A:							
La Prairie-----	90	Very limited Flooding Frost action Shrink-swell	1.00 0.50 0.01	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.60 0.10	Somewhat limited Flooding	0.60
Lamoure-----	10	Very limited Frost action Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 0.38	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.60 0.10	Very limited Depth to saturated zone Flooding	1.00 0.60
J3A:							
Arveson-----	80	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
Marysland-----	10	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 0.22	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J3A: Marysland, depressional-----	5	Very limited Depth to saturated zone Frost action Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Malachy-----	5	Very limited Frost action	1.00	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Not limited	
J4A: Rockwell-----	90	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
J5A: Fossum-----	85	Very limited Depth to saturated zone Frost action	1.00 0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone Droughty	1.00 0.01
Arveson-----	10	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
Fossum, depressional	3	Very limited Depth to saturated zone Ponding Frost action	1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Cutbanks cave Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Droughty	1.00 1.00 1.00 0.14
Hecla-----	2	Somewhat limited Frost action	0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Droughty	0.15
J6A: McDonaldsville-----	90	Very limited Shrink-swell Depth to saturated zone Frost action	1.00 1.00 0.50	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Too clayey	1.00 1.00
Somewhat poorly drained soils-----	10	Very limited Shrink-swell Depth to saturated zone Frost action	1.00 0.78 0.50	Very limited Cutbanks cave Depth to saturated zone Too clayey	1.00 1.00 1.00 0.50	Very limited Too clayey Depth to saturated zone	1.00 0.78

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J7A:</b>							
Sverdrup-----	85	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.03
Arveson-----	5	Very limited Frost action Depth to saturated zone	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00	Very limited Depth to saturated zone	1.00
Clontarf-----	5	Somewhat limited Depth to saturated zone Frost action	0.90 0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90
Egeland-----	5	Not limited		Very limited Cutbanks cave	1.00	Not limited	
<b>J7B:</b>							
Sverdrup-----	90	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.03
Clontarf-----	5	Somewhat limited Depth to saturated zone Frost action	0.90 0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90
Egeland-----	5	Not limited		Very limited Cutbanks cave	1.00	Not limited	
<b>J8A:</b>							
Egeland-----	80	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Clontarf-----	10	Somewhat limited Depth to saturated zone Frost action	0.90 0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90
Sverdrup-----	5	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.03
Arveson-----	3	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
Hantho-----	2	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
<b>J8B:</b>							
Egeland-----	80	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Clontarf-----	8	Somewhat limited Depth to saturated zone Frost action	0.90 0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J8B:</b>							
Sverdrup-----	5	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.03
Torning-----	3	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Eckman-----	2	Very limited Frost action	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Egeland, eroded----	2	Not limited		Very limited Cutbanks cave	1.00	Not limited	
<b>J9A:</b>							
Estelline-----	90	Very limited Low strength	1.00	Very limited Cutbanks cave	1.00	Not limited	
Soils that have a thin surface layer	10	Not limited		Very limited Cutbanks cave	1.00	Not limited	
<b>J10A:</b>							
Sinai-----	90	Very limited Frost action Low strength Shrink-swell	1.00 1.00 1.00	Very limited Cutbanks cave Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Too clayey	1.00
Fulda-----	10	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 0.50 0.10	Very limited Depth to saturated zone Too clayey	1.00 1.00
<b>J10B:</b>							
Sinai-----	90	Very limited Frost action Low strength Shrink-swell	1.00 1.00 1.00	Very limited Cutbanks cave Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Too clayey	1.00
Fulda-----	10	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 0.50 0.10	Very limited Depth to saturated zone Too clayey	1.00 1.00
<b>J11A:</b>							
Valliers-----	85	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J11A: Parnell, depressional-----	10	Very limited Depth to saturated zone Frost action Low strength Shrink-swell Ponding	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Balaton-----	5	Very limited Frost action	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
J12A: Marysland-----	85	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 0.22	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
Marysland, depressional-----	3	Very limited Depth to saturated zone Frost action Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Malachy-----	2	Very limited Frost action	1.00	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Not limited	
J13A: Oldham-----	90	Very limited Depth to saturated zone Frost action Low strength Shrink-swell Ponding	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J14F:</b>							
Esmond-----	85	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Emrick-----	10	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Heimdal-----	5	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
<b>J15B:</b>							
Eckman-----	80	Very limited Frost action	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Eckman, eroded-----	5	Very limited Frost action	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Egeland-----	5	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Hantho-----	5	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
Zell-----	5	Very limited Frost action Low strength	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
<b>J16A:</b>							
Friberg, depressionals-----	90	Very limited Depth to saturated zone Frost action Ponding Shrink-swell	1.00 1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Kerkhoven-----	10	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
<b>J17A:</b>							
Quam, depressionals-----	90	Very limited Depth to saturated zone Frost action Low strength Ponding Shrink-swell	1.00 1.00 1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J17A:							
Colvin-----	5	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
Vallars-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
J18A:							
Malachy-----	85	Very limited Frost action	1.00	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Not limited	
Arveson-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
Well drained soils--	5	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.64	Not limited	
Clontarf-----	5	Somewhat limited Depth to saturated zone Frost action	0.90 0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90
J19A:							
Hecla-----	80	Somewhat limited Frost action	0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Droughty	0.15
Clontarf-----	10	Somewhat limited Depth to saturated zone Frost action	0.90 0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90
Sverdrup-----	5	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.03
Hamar-----	3	Very limited Depth to saturated zone Frost action	1.00 0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone Droughty	1.00 0.09
Malachy-----	2	Very limited Frost action	1.00	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Not limited	

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J20A:</b>							
Clontarf-----	80	Somewhat limited Depth to saturated zone Frost action	0.90  0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90
Hecla-----	10	Somewhat limited Frost action	0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Droughty	0.15
Arveson-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
Well drained soils--	5	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.64	Not limited	
<b>J21A:</b>							
Hamar-----	85	Very limited Depth to saturated zone Frost action	1.00 0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone Droughty	1.00 0.09
Less sandy soils----	8	Very limited Depth to saturated zone Frost action	1.00 0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
Arveson-----	4	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
Hecla-----	3	Somewhat limited Frost action	0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Droughty	0.15
<b>J22A:</b>							
Renshaw-----	85	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.03
Fordtown-----	10	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.78	Not limited	
Arvilla-----	3	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.53
Fordville-----	2	Not limited		Very limited Cutbanks cave	1.00	Not limited	

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J23A:</b>							
Lamoure-----	85	Very limited Frost action Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 0.38	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 1.00 0.60 0.10	Very limited Depth to saturated zone Flooding	1.00 1.00 0.60
Rauville-----	10	Very limited Depth to saturated zone Frost action Flooding Low strength Shrink-swell	1.00 1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 1.00 0.80	Very limited Flooding Depth to saturated zone	1.00 1.00
La Prairie-----	5	Very limited Flooding Frost action Shrink-swell	1.00 0.50 0.01	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.60 0.10	Somewhat limited Flooding	0.60
<b>J24F:</b>							
Buse-----	85	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Darnen-----	10	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Barnes-----	5	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
<b>J25A:</b>							
Rauville-----	90	Very limited Depth to saturated zone Frost action Flooding Low strength Shrink-swell	1.00 1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 1.00 0.80	Very limited Flooding Depth to saturated zone	1.00 1.00
Lamoure-----	10	Very limited Frost action Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00 0.38	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.60 0.10	Very limited Depth to saturated zone Flooding	1.00 0.60
<b>J26B:</b>							
Darnen-----	90	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J26B: Hokans-----	5	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Lakepark-----	5	Very limited Frost action Depth to saturated zone Shrink-swell	1.00 1.00 0.02	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
J27A: Hantho-----	85	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
Eckman-----	5	Very limited Frost action	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Quam-----	5	Very limited Frost action Depth to saturated zone Low strength Shrink-swell	1.00 1.00 1.00 0.11	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Rondell-----	3	Very limited Frost action Low strength Shrink-swell	1.00 1.00 0.01	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Tara-----	2	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
J28A: Vallars, bouldery---	90	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	10	Very limited Depth to saturated zone Frost action Low strength Shrink-swell Ponding	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
J29A: Cathro-----	90	Very limited Depth to saturated zone Subsidence Frost action Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 0.10	Very limited Content of organic matter Depth to saturated zone Ponding	1.00 1.00 1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J29A:							
Colvin-----	5	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
J30A:							
Tara-----	90	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
Balaton-----	5	Very limited Frost action	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Byrne-----	3	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Quam-----	2	Very limited Frost action Depth to saturated zone Low strength Shrink-swell	1.00 1.00 1.00 0.11	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
J31B:							
Arvilla-----	45	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.53
Sandberg-----	30	Not limited		Very limited Cutbanks cave	1.00	Very limited Droughty Gravel content Content of large stones	1.00 0.01 0.01
Renshaw-----	10	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.03
Sioux-----	10	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.51
Fordtown-----	5	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.64	Not limited	

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J32A:</b>							
Bigstone-----	80	Very limited Depth to saturated zone Frost action Low strength Ponding Shrink-swell	1.00 1.00 1.00 1.00 0.02	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Urness-----	10	Very limited Depth to saturated zone Frost action Low strength Ponding Shrink-swell	1.00 1.00 1.00 1.00 0.01	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
<b>J33D2:</b>							
Sisseton, eroded----	70	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Heimdal, eroded----	10	Somewhat limited Slope Frost action	0.96 0.50	Somewhat limited Slope Cutbanks cave	0.96 0.10	Somewhat limited Slope	0.96
Esmond, eroded----	10	Somewhat limited Frost action Slope	0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Heimdal, slightly eroded-----	5	Somewhat limited Slope Frost action	0.96 0.50	Somewhat limited Slope Cutbanks cave	0.96 0.10	Somewhat limited Slope	0.96
Emrick-----	5	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
<b>J34B:</b>							
Byrne-----	45	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Buse-----	35	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J34B:							
Buse, eroded-----	10	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Hokans-----	5	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Tara-----	5	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
J35B:							
Hokans-----	45	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Buse-----	30	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Barnes-----	10	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Buse, eroded-----	10	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Svea-----	5	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
J36C2:							
Buse, eroded-----	45	Somewhat limited Frost action Slope	0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Barnes, eroded-----	20	Somewhat limited Frost action Slope	0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Barnes, slightly eroded-----	10	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Buse, slightly eroded-----	10	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Darnen-----	10	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Langhei, eroded-----	5	Somewhat limited Slope Frost action	0.96 0.50	Somewhat limited Slope Cutbanks cave	0.96 0.10	Somewhat limited Slope	0.96

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J37D2:</b>							
Langhei, eroded-----	60	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Barnes, eroded-----	15	Somewhat limited Slope Frost action	0.96 0.50	Somewhat limited Slope Cutbanks cave	0.96 0.10	Somewhat limited Slope	0.96
Buse, eroded-----	10	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Darnen-----	10	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Barnes, slightly eroded-----	5	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
<b>J38B:</b>							
Zell-----	41	Very limited Frost action Low strength	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Eckman-----	39	Very limited Frost action	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Zell, eroded-----	10	Very limited Frost action Low strength	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Egeland-----	5	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Hantho-----	5	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
<b>J38C2:</b>							
Zell, eroded-----	45	Very limited Frost action Low strength Slope	1.00 1.00 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Eckman, eroded-----	20	Very limited Frost action Slope	1.00 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Zell, slightly eroded-----	15	Very limited Frost action Low strength	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J38C2: Hantho-----	10	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
Eckman, slightly eroded-----	5	Very limited Frost action Slope	1.00 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Egeland-----	5	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Somewhat limited Slope	0.16
J39A: Udorthents-----	100	Not rated		Not rated		Not rated	
J40A: Foxlake-----	85	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.28 0.10	Very limited Depth to saturated zone Too clayey	1.00 1.00
Audubon-----	5	Very limited Shrink-swell Frost action	1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Too clayey	1.00
Calcareous soils----	5	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.28 0.10	Very limited Depth to saturated zone Too clayey	1.00 1.00
Soils in depressions	5	Very limited Depth to saturated zone Frost action Shrink-swell Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00
J41A: Urness-----	80	Very limited Depth to saturated zone Frost action Low strength Ponding Shrink-swell	1.00 1.00 1.00 1.00 0.01	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Bigstone-----	10	Very limited Depth to saturated zone Frost action Low strength Ponding Shrink-swell	1.00 1.00 1.00 1.00 0.02	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J41A:</b>							
Colvin-----	5	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
Vallars-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
<b>J42C:</b>							
Sandberg-----	60	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Very limited Droughty Slope Gravel content Content of large stones	1.00 0.16 0.01 0.01
Arvilla-----	30	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Somewhat limited Droughty Slope	0.53 0.16
Everts-----	10	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
<b>J43A:</b>							
Quam, depressiona--	30	Very limited Ponding Depth to saturated zone Frost action Low strength	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Ponding Depth to saturated zone	1.00 1.00
Cathro-----	30	Very limited Ponding Depth to saturated zone Frost action	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Content of organic matter Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Ponding Content of organic matter Depth to saturated zone	1.00 1.00 1.00
Urness-----	30	Very limited Ponding Depth to saturated zone Frost action Low strength Shrink-swell	1.00 1.00 1.00 1.00 0.01	Very limited Ponding Depth to saturated zone Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Ponding Depth to saturated zone	1.00 1.00
Colvin-----	5	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
Vallars-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J44B:							
Esmond-----	45	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Heimdal-----	40	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Esmond, eroded----	10	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Emrick-----	5	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
J44C2:							
Esmond, eroded----	40	Somewhat limited Frost action Slope	0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Heimdal, eroded----	25	Somewhat limited Frost action Slope	0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Esmond, slightly eroded-----	15	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Heimdal, slightly eroded-----	10	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Emrick-----	5	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Sisseton, eroded----	5	Somewhat limited Slope Frost action	0.96 0.50	Somewhat limited Slope Cutbanks cave	0.96 0.10	Somewhat limited Slope	0.96
J45F:							
Sandberg-----	80	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00	Very limited Slope Droughty Content of large stones	1.00 0.69 0.01
Everts-----	10	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Arvilla-----	5	Somewhat limited Slope	0.16	Very limited Cutbanks cave Slope	1.00 0.16	Somewhat limited Droughty Slope	0.53 0.16
Sioux-----	5	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00	Very limited Slope Droughty	1.00 0.51

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J46B:</b>							
Byrne-----	85	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Hokans-----	7	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Buse-----	5	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Quam-----	3	Very limited Frost action Depth to saturated zone Low strength Shrink-swell	1.00 1.00 1.00 0.11	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
<b>J47A:</b>							
Swenoda-----	85	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Clontarf-----	10	Somewhat limited Depth to saturated zone Frost action	0.90 0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90
Egeland-----	5	Not limited		Very limited Cutbanks cave	1.00	Not limited	
<b>J48A:</b>							
Bigstone-----	40	Very limited Ponding Depth to saturated zone Frost action Low strength Shrink-swell	1.00 1.00 1.00 1.00 0.02	Very limited Ponding Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Ponding Depth to saturated zone	1.00 1.00
Parnell-----	40	Very limited Ponding Depth to saturated zone Frost action Low strength Shrink-swell	1.00 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Ponding Depth to saturated zone	1.00 1.00
Colvin-----	10	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J48A: Vallers-----	10	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
J49A: Lakepark-----	50	Very limited Frost action Depth to saturated zone Shrink-swell	1.00 1.00 0.02	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	35	Very limited Depth to saturated zone Frost action Low strength Shrink-swell Ponding	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Emrick-----	8	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Vallers-----	7	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
J50A: Balaton-----	45	Very limited Frost action	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Tara-----	35	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
McIntosh-----	10	Very limited Frost action Low strength Depth to saturated zone	1.00 1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
Well drained soils--	5	Very limited Frost action	1.00	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Winger-----	5	Very limited Frost action Depth to saturated zone Low strength Shrink-swell	1.00 1.00 0.22 0.01	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J51A:</b>							
Bearden-----	60	Very limited Frost action Low strength Depth to saturated zone	1.00 1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Somewhat limited Depth to saturated zone	0.78
Quam, depressional--	30	Very limited Depth to saturated zone Frost action Low strength Ponding Shrink-swell	1.00 1.00 1.00 1.00 1.00 0.56	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Rondell-----	7	Very limited Frost action Low strength Shrink-swell	1.00 1.00 0.01	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Not limited	
Winger-----	3	Very limited Frost action Depth to saturated zone Low strength Shrink-swell	1.00 1.00 0.22 0.01	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
<b>J52A:</b>							
Rondell-----	85	Very limited Frost action Low strength Shrink-swell	1.00 1.00 0.01	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Not limited	
Zell-----	9	Very limited Frost action Low strength	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Bearden-----	6	Very limited Frost action Low strength Depth to saturated zone	1.00 1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Somewhat limited Depth to saturated zone	0.78
<b>J53A:</b>							
Ortonville-----	85	Very limited Frost action	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Not limited	
Well drained soils--	10	Very limited Frost action	1.00	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Vallars-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J54A: Marysland, depressional-----	90	Very limited Depth to saturated zone Frost action Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00 1.00
Marysland soils that are not ponded-----	10	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00 0.22	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 1.00	Very limited Depth to saturated zone	1.00
J55A: Sedgeville-----	90	Very limited Frost action Flooding Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 1.00 0.60	Very limited Depth to saturated zone Flooding	1.00 1.00 0.60
Soils that are frequently flooded	10	Very limited Depth to saturated zone Frost action Flooding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 1.00 0.80	Very limited Flooding Depth to saturated zone	1.00 1.00 1.00
J56A: Winger-----	40	Very limited Frost action Depth to saturated zone Low strength Shrink-swell	1.00 1.00 1.00 0.22 0.01	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
Balaton-----	30	Very limited Frost action	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Parnell, depressional-----	20	Very limited Depth to saturated zone Frost action Low strength Shrink-swell Ponding	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey Cutbanks cave	1.00 1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J57A: Balaton-----	85	Very limited Frost action	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Well drained soils--	5	Very limited Frost action	1.00	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Tara-----	5	Very limited Frost action Depth to saturated zone	1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.78
Vallers-----	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
J58B: Torning-----	45	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Egeland-----	40	Not limited		Very limited Cutbanks cave	1.00	Not limited	
Clontarf-----	10	Somewhat limited Depth to saturated zone Frost action	0.90 0.50	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90
Sverdrup-----	5	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.03
J59A: Urness, sandy substratum-----	90	Very limited Ponding Depth to saturated zone Frost action Low strength	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Cutbanks cave	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Marysland-----	10	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 0.22	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
J60B: Hattie-----	46	Very limited Shrink-swell Frost action	1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Too clayey	1.00 1.00 0.28	Very limited Too clayey	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J60B:							
Audubon-----	44	Very limited Shrink-swell Frost action	1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Too clayey	1.00
Foxlake-----	10	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Too clayey	1.00 1.00
J60C:							
Hattie-----	60	Very limited Shrink-swell Frost action	1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Too clayey	1.00
Audubon-----	30	Very limited Shrink-swell Frost action	1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Too clayey	1.00 1.00 0.28	Very limited Too clayey	1.00
Foxlake-----	10	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Too clayey	1.00 1.00
J61A:							
Svea, bouldery-----	90	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Vallers, bouldery---	5	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	5	Very limited Depth to saturated zone Frost action Low strength Shrink-swell Ponding	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey Cutbanks cave	1.00 1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
J62C:							
Buse, very bouldery	45	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Barnes, very bouldery-----	25	Somewhat limited Frost action Slope	0.50 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
<b>J62C:</b>							
Hokans-----	15	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
Svea, bouldery-----	10	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Darnen-----	5	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
<b>J62F:</b>							
Buse, very bouldery	50	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Barnes, very bouldery-----	40	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Darnen-----	10	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.64 0.10	Not limited	
<b>J63A:</b>							
Ortonville-----	45	Very limited Frost action	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Vallers-----	35	Very limited Frost action Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Parnell, depression-----	20	Very limited Depth to saturated zone Frost action Low strength Shrink-swell Ponding	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey Cutbanks cave	1.00 1.00 1.00 0.28 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
<b>J64A:</b>							
Quam-----	90	Very limited Frost action Depth to saturated zone Low strength Shrink-swell	1.00 1.00 1.00 0.11	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J64A:							
Colvin-----	5	Very limited Frost action Depth to saturated zone Low strength	1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Quam, depressional--	5	Very limited Depth to saturated zone Frost action Low strength Ponding Shrink-swell	1.00 1.00 1.00 1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
J65A:							
Shakopee-----	90	Very limited Shrink-swell Depth to saturated zone Frost action	1.00 1.00 0.50	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Too clayey	1.00 1.00
Soils in depressions	10	Very limited Depth to saturated zone Shrink-swell Ponding Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Cutbanks cave Ponding Too clayey	1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00
J66A:							
Emrick-----	85	Somewhat limited Frost action	0.50	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Not limited	
Lakepark-----	10	Very limited Frost action Depth to saturated zone Shrink-swell	1.00 1.00 0.02	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Very limited Depth to saturated zone	1.00
Heimdal-----	5	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
J67A:							
Fordtown-----	85	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.64	Not limited	
Renshaw-----	8	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.03
Spottswood-----	7	Somewhat limited Depth to saturated zone	0.90	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.90

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
J68A: Kerkhoven-----	55	Very limited Frost action Depth to saturated zone	 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave	 1.00 0.10	Very limited Depth to saturated zone	 1.00
Friberg, depressional-----	35	Very limited Depth to saturated zone Frost action Ponding Shrink-swell	 1.00 1.00 1.00 0.11	Very limited Depth to saturated zone Ponding Cutbanks cave	 1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	 1.00 1.00
Emrick-----	10	Somewhat limited Frost action	 0.50	Very limited Depth to saturated zone Cutbanks cave	 1.00 0.10	Not limited	
L33B: Kandiyohi-----	85	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	 1.00 1.00 1.00 0.78	Very limited Depth to saturated zone Too clayey Cutbanks cave	 1.00 0.28 0.10	Very limited Too clayey Depth to saturated zone	 1.00 0.78
Cosmos-----	10	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	 1.00 0.28 0.10	Very limited Depth to saturated zone Too clayey	 1.00 1.00
Okoboji-----	5	Very limited Depth to saturated zone Frost action Low strength Ponding Shrink-swell	 1.00 1.00 1.00 1.00 0.86	Very limited Depth to saturated zone Ponding Cutbanks cave	 1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	 1.00 1.00
L34A: Cosmos-----	85	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	 1.00 0.28 0.10	Very limited Depth to saturated zone Too clayey	 1.00 1.00
Kandiyohi-----	10	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	 1.00 1.00 1.00 0.78	Very limited Depth to saturated zone Too clayey Cutbanks cave	 1.00 0.28 0.10	Very limited Too clayey Depth to saturated zone	 1.00 0.78

Table 10b.--Building Site Development--Continued

Map symbol and component name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
L34A: Okoboji-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Frost action	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Ponding	1.00				
		Shrink-swell	0.86				
M-W: Water, miscellaneous	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 11a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
GP:			
Pits, gravel-----	80	Not rated	
Udipsamments-----	20	Not rated	
J1A:			
Parnell, depressional-----	90	Very limited	
		Depth to saturated zone	1.00
		Ponding	1.00
Colvin-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.27
Vallars-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.50
J2A:			
La Prairie-----	90	Very limited	
		Flooding	1.00
		Depth to saturated zone	1.00
		Seepage	0.53
Lamoure-----	10	Very limited	
		Flooding	1.00
		Depth to saturated zone	1.00
		Seepage	0.28
J3A:			
Arveson-----	80	Very limited	
		Depth to saturated zone	1.00
		Seepage	1.00
Marysland-----	10	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
Marysland, depressional-----	5	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
		Ponding	1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J3A: Malachy-----	5	Very limited Seepage Depth to saturated zone	1.00 1.00
J4A: Rockwell-----	90	Very limited Depth to saturated zone Seepage	1.00 1.00
Arveson-----	10	Very limited Depth to saturated zone Seepage	1.00 1.00
J5A: Fossum-----	85	Very limited Seepage Depth to saturated zone	1.00 1.00
Arveson-----	10	Very limited Depth to saturated zone Seepage	1.00 1.00
Fossum, depressiona	3	Very limited Seepage Depth to saturated zone Ponding	1.00 1.00 1.00
Hecla-----	2	Very limited Seepage Depth to saturated zone	1.00 1.00
J6A: McDonaldsville----	90	Very limited Seepage Depth to saturated zone	1.00 1.00
Somewhat poorly drained soils-----	10	Very limited Seepage Depth to saturated zone	1.00 1.00
J7A: Sverdrup-----	85	Very limited Seepage	1.00
Arveson-----	5	Very limited Depth to saturated zone Seepage	1.00 1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J7A:</b>			
Clontarf-----	5	Very limited Seepage Depth to saturated zone	1.00 1.00
Egeland-----	5	Very limited Seepage	1.00
<b>J7B:</b>			
Sverdrup-----	90	Very limited Seepage Slope	1.00 0.32
Clontarf-----	5	Very limited Seepage Depth to saturated zone	1.00 1.00
Egeland-----	5	Very limited Seepage Slope	1.00 0.08
<b>J8A:</b>			
Egeland-----	80	Very limited Seepage	1.00
Clontarf-----	10	Very limited Seepage Depth to saturated zone	1.00 1.00
Sverdrup-----	5	Very limited Seepage	1.00
Arveson-----	3	Very limited Depth to saturated zone Seepage	1.00 1.00
Hantho-----	2	Very limited Depth to saturated zone Seepage	1.00 0.53
<b>J8B:</b>			
Egeland-----	80	Very limited Seepage Slope	1.00 0.32
Clontarf-----	8	Very limited Seepage Depth to saturated zone	1.00 1.00
Sverdrup-----	5	Very limited Seepage Slope	1.00 0.68

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J8B:</b>			
Torning-----	3	Very limited Seepage	1.00
		Slope	0.68
Eckman-----	2	Somewhat limited Seepage	0.92
		Slope	0.08
Egeland, eroded----	2	Very limited Seepage	1.00
		Slope	0.68
<b>J9A:</b>			
Estelline-----	90	Very limited Seepage	1.00
Soils that have a thin surface layer	10	Very limited Seepage	1.00
<b>J10A:</b>			
Sinai-----	90	Very limited Depth to saturated zone	1.00
Fulda-----	10	Very limited Depth to saturated zone	1.00
<b>J10B:</b>			
Sinai-----	90	Very limited Depth to saturated zone Slope	1.00 0.32
Fulda-----	10	Very limited Depth to saturated zone	1.00
<b>J11A:</b>			
Vallers-----	85	Very limited Depth to saturated zone Seepage	1.00 0.50
Parnell, depressional-----	10	Very limited Depth to saturated zone Ponding	1.00 1.00
Balaton-----	5	Very limited Depth to saturated zone Seepage	1.00 0.50

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J12A:</b>			
Marysland-----	85	Very limited Seepage	1.00
		Depth to saturated zone	1.00
Arveson-----	10	Very limited Depth to saturated zone	1.00
		Seepage	1.00
Marysland, depressional-----	3	Very limited Seepage	1.00
		Depth to saturated zone	1.00
		Ponding	1.00
Malachy-----	2	Very limited Seepage	1.00
		Depth to saturated zone	1.00
<b>J13A:</b>			
Oldham-----	90	Very limited Depth to saturated zone	1.00
		Ponding	1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00
		Seepage	0.27
Vallers-----	5	Very limited Depth to saturated zone	1.00
		Seepage	0.50
<b>J14F:</b>			
Esmond-----	85	Very limited Slope	1.00
		Seepage	0.92
Emrick-----	10	Very limited Depth to saturated zone	1.00
		Seepage	0.92
		Slope	0.68
Heimdahl-----	5	Very limited Slope	1.00
		Seepage	0.92
<b>J15B:</b>			
Eckman-----	80	Somewhat limited Seepage	0.92
		Slope	0.08

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J15B:			
Eckman, eroded-----	5	Somewhat limited	
		Seepage	0.92
		Slope	0.32
Egeland-----	5	Very limited	
		Seepage	1.00
		Slope	0.08
Hantho-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.53
Zell-----	5	Somewhat limited	
		Seepage	0.53
		Slope	0.32
J16A:			
Friberg, depressional-----	90	Very limited	
		Depth to saturated zone	1.00
		Ponding	1.00
		Seepage	0.53
Kerkhoven-----	10	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.50
J17A:			
Quam, depressional--	90	Very limited	
		Depth to saturated zone	1.00
		Ponding	1.00
Colvin-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.27
Vallers-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.50
J18A:			
Malachy-----	85	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
Arveson-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J18A:</b>			
Well drained soils--	5	Very limited	
		Seepage	1.00
		Depth to saturated zone	0.78
		Slope	0.08
Clontarf-----	5	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
<b>J19A:</b>			
Hecla-----	80	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
Clontarf-----	10	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
Sverdrup-----	5	Very limited	
		Seepage	1.00
Hamar-----	3	Very limited	
		Depth to saturated zone	1.00
		Seepage	1.00
Malachy-----	2	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
<b>J20A:</b>			
Clontarf-----	80	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
Hecla-----	10	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
Arveson-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	1.00
Well drained soils--	5	Very limited	
		Seepage	1.00
		Depth to saturated zone	0.78
		Slope	0.08

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J21A:</b>			
Hamar-----	85	Very limited Depth to saturated zone Seepage	1.00 1.00
Less sandy soils----	8	Very limited Seepage Depth to saturated zone	1.00 1.00
Arveson-----	4	Very limited Depth to saturated zone Seepage	1.00 1.00
Hecla-----	3	Very limited Seepage Depth to saturated zone	1.00 1.00
<b>J22A:</b>			
Renshaw-----	85	Very limited Seepage	1.00
Fordtown-----	10	Very limited Seepage Depth to saturated zone	1.00 0.98
Arvilla-----	3	Very limited Seepage Slope	1.00 0.08
Fordville-----	2	Very limited Seepage	1.00
<b>J23A:</b>			
Lamoure-----	85	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.28
Rauville-----	10	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
La Prairie-----	5	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.53
<b>J24F:</b>			
Buse-----	85	Very limited Slope Seepage	1.00 0.50

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J24F:</b>			
Darnen-----	10	Somewhat limited	
		Depth to saturated zone	0.78
		Slope	0.68
		Seepage	0.50
Barnes-----	5	Very limited	
		Slope	1.00
		Seepage	0.50
<b>J25A:</b>			
Rauville-----	90	Very limited	
		Flooding	1.00
		Seepage	1.00
		Depth to saturated zone	1.00
Lamoure-----	10	Very limited	
		Flooding	1.00
		Depth to saturated zone	1.00
		Seepage	0.28
<b>J26B:</b>			
Darnen-----	90	Somewhat limited	
		Depth to saturated zone	0.78
		Seepage	0.50
		Slope	0.32
Hokans-----	5	Somewhat limited	
		Depth to saturated zone	0.78
		Seepage	0.50
		Slope	0.32
Lakepark-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.50
<b>J27A:</b>			
Hantho-----	85	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.53
Eckman-----	5	Somewhat limited	
		Seepage	0.92
		Slope	0.08
Quam-----	5	Very limited	
		Depth to saturated zone	1.00
Rondell-----	3	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.18

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J27A: Tara-----	2	Very limited Depth to saturated zone Seepage	1.00 0.50
J28A: Vallers, bouldery---	90	Very limited Depth to saturated zone Seepage	1.00 0.50
Parnell, depressional-----	10	Very limited Depth to saturated zone Ponding	1.00 1.00
J29A: Cathro-----	90	Very limited Depth to saturated zone Seepage Ponding Content of organic matter	1.00 1.00 1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone Seepage	1.00 0.27
Vallers-----	5	Very limited Depth to saturated zone Seepage	1.00 0.50
J30A: Tara-----	90	Very limited Depth to saturated zone Seepage	1.00 0.50
Balaton-----	5	Very limited Depth to saturated zone Seepage	1.00 0.50
Byrne-----	3	Somewhat limited Depth to saturated zone Seepage Slope	0.78 0.50 0.32
Quam-----	2	Very limited Depth to saturated zone	1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J31B:</b>			
Arvilla-----	45	Very limited Seepage	1.00
		Slope	0.32
Sandberg-----	30	Very limited Seepage	1.00
		Slope	0.32
Renshaw-----	10	Very limited Seepage	1.00
Sioux-----	10	Very limited Seepage	1.00
		Slope	0.68
Fordtown-----	5	Very limited Seepage	1.00
		Depth to saturated zone	0.78
<b>J32A:</b>			
Bigstone-----	80	Very limited Depth to saturated zone	1.00
		Ponding	1.00
		Seepage	0.18
Urness-----	10	Very limited Depth to saturated zone	1.00
		Ponding	1.00
		Seepage	0.50
Colvin-----	5	Very limited Depth to saturated zone	1.00
		Seepage	0.27
Vallers-----	5	Very limited Depth to saturated zone	1.00
		Seepage	0.50
<b>J33D2:</b>			
Sisseton, eroded----	70	Very limited Slope	1.00
		Seepage	0.92
Heimdal, eroded----	10	Very limited Slope	1.00
		Seepage	0.92
Esmond, eroded----	10	Very limited Slope	1.00
		Seepage	0.92
Heimdal, slightly eroded-----	5	Very limited Slope	1.00
		Seepage	0.92

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J33D2:			
Emrick-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.92
		Slope	0.08
J34B:			
Byrne-----	45	Somewhat limited	
		Depth to saturated zone	0.78
		Seepage	0.50
		Slope	0.08
Buse-----	35	Somewhat limited	
		Seepage	0.50
		Slope	0.32
Buse, eroded-----	10	Somewhat limited	
		Slope	0.68
		Seepage	0.50
Hokans-----	5	Somewhat limited	
		Depth to saturated zone	0.78
		Seepage	0.50
		Slope	0.08
Tara-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.50
J35B:			
Hokans-----	45	Somewhat limited	
		Depth to saturated zone	0.78
		Seepage	0.50
		Slope	0.08
Buse-----	30	Somewhat limited	
		Seepage	0.50
		Slope	0.32
Barnes-----	10	Somewhat limited	
		Seepage	0.50
		Slope	0.32
Buse, eroded-----	10	Somewhat limited	
		Slope	0.68
		Seepage	0.50
Svea-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.53
J36C2:			
Buse, eroded-----	45	Very limited	
		Slope	1.00
		Seepage	0.50

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J36C2:</b>			
Barnes, eroded-----	20	Very limited Slope Seepage	1.00 0.50
Barnes, slightly eroded-----	10	Very limited Slope Seepage	1.00 0.50
Buse, slightly eroded-----	10	Very limited Slope Seepage	1.00 0.50
Darnen-----	10	Somewhat limited Depth to saturated zone Slope Seepage	0.78 0.68 0.50
Langhei, eroded-----	5	Very limited Slope Seepage	1.00 0.50
<b>J37D2:</b>			
Langhei, eroded-----	60	Very limited Slope Seepage	1.00 0.50
Barnes, eroded-----	15	Very limited Slope Seepage	1.00 0.50
Buse, eroded-----	10	Very limited Slope Seepage	1.00 0.50
Darnen-----	10	Somewhat limited Depth to saturated zone Slope Seepage	0.78 0.68 0.50
Barnes, slightly eroded-----	5	Very limited Slope Seepage	1.00 0.50
<b>J38B:</b>			
Zell-----	41	Somewhat limited Seepage Slope	0.53 0.32
Eckman-----	39	Somewhat limited Seepage Slope	0.92 0.32
Zell, eroded-----	10	Somewhat limited Seepage Slope	0.53 0.32

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J38B:</b>			
Egeland-----	5	Very limited Seepage	1.00
		Slope	0.32
Hantho-----	5	Very limited Depth to saturated zone	1.00
		Seepage	0.53
<b>J38C2:</b>			
Zell, eroded-----	45	Very limited Slope	1.00
		Seepage	0.53
Eckman, eroded-----	20	Very limited Slope	1.00
		Seepage	0.92
Zell, slightly eroded-----	15	Very limited Slope	1.00
		Seepage	0.53
Hantho-----	10	Very limited Depth to saturated zone	1.00
		Seepage	0.53
Eckman, slightly eroded-----	5	Very limited Slope	1.00
		Seepage	0.92
Egeland-----	5	Very limited Seepage	1.00
		Slope	1.00
<b>J39A:</b>			
Udorthents-----	100	Not rated	
<b>J40A:</b>			
Foxlake-----	85	Very limited Depth to saturated zone	1.00
Audubon-----	5	Very limited Depth to saturated zone	1.00
Calcareous soils----	5	Very limited Depth to saturated zone	1.00
Soils in depressions	5	Very limited Depth to saturated zone	1.00
		Ponding	1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J41A:</b>			
Urness-----	80	Very limited	
		Depth to saturated zone	1.00
		Ponding	1.00
		Seepage	0.50
Bigstone-----	10	Very limited	
		Depth to saturated zone	1.00
		Ponding	1.00
		Seepage	0.18
Colvin-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.27
Vallers-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.50
<b>J42C:</b>			
Sandberg-----	60	Very limited	
		Seepage	1.00
		Slope	1.00
Arvilla-----	30	Very limited	
		Seepage	1.00
		Slope	1.00
Everts-----	10	Very limited	
		Seepage	1.00
		Slope	0.32
<b>J43A:</b>			
Quam, depressional--	30	Very limited	
		Ponding	1.00
		Depth to saturated zone	1.00
Cathro-----	30	Very limited	
		Ponding	1.00
		Depth to saturated zone	1.00
		Seepage	1.00
		Content of organic matter	1.00
Urness-----	30	Very limited	
		Ponding	1.00
		Depth to saturated zone	1.00
		Seepage	0.50
Colvin-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.27

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J43A:			
Vallers-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.50
J44B:			
Esmond-----	45	Somewhat limited	
		Seepage	0.92
		Slope	0.08
Heimdal-----	40	Somewhat limited	
		Seepage	0.92
		Slope	0.32
Esmond, eroded-----	10	Somewhat limited	
		Seepage	0.92
		Slope	0.68
Emrick-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.92
J44C2:			
Esmond, eroded-----	40	Very limited	
		Slope	1.00
		Seepage	0.92
Heimdal, eroded-----	25	Very limited	
		Slope	1.00
		Seepage	0.92
Esmond, slightly eroded-----	15	Very limited	
		Slope	1.00
		Seepage	0.92
Heimdal, slightly eroded-----	10	Very limited	
		Slope	1.00
		Seepage	0.92
Emrick-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.92
Sisseton, eroded-----	5	Very limited	
		Slope	1.00
		Seepage	0.92
J45F:			
Sandberg-----	80	Very limited	
		Slope	1.00
		Seepage	1.00
Everts-----	10	Very limited	
		Seepage	1.00
		Slope	0.68

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J45F:</b>			
Arvilla-----	5	Very limited Seepage	1.00
		Slope	1.00
Sioux-----	5	Very limited Slope	1.00
		Seepage	1.00
<b>J46B:</b>			
Byrne-----	85	Somewhat limited Depth to saturated zone	0.78
		Seepage	0.50
		Slope	0.32
Hokans-----	7	Somewhat limited Depth to saturated zone	0.78
		Seepage	0.50
		Slope	0.32
Buse-----	5	Somewhat limited Slope	0.68
		Seepage	0.50
Quam-----	3	Very limited Depth to saturated zone	1.00
<b>J47A:</b>			
Swenoda-----	85	Very limited Seepage	1.00
		Depth to saturated zone	1.00
Clontarf-----	10	Very limited Seepage	1.00
		Depth to saturated zone	1.00
Egeland-----	5	Very limited Seepage	1.00
<b>J48A:</b>			
Bigstone-----	40	Very limited Ponding	1.00
		Depth to saturated zone	1.00
		Seepage	0.18
Parnell-----	40	Very limited Ponding	1.00
		Depth to saturated zone	1.00
Colvin-----	10	Very limited Depth to saturated zone	1.00
		Seepage	0.27

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J48A: Vallers-----	10	Very limited Depth to saturated zone Seepage	1.00 0.50
J49A: Lakepark-----	50	Very limited Depth to saturated zone Seepage	1.00 0.50
Parnell, depressional-----	35	Very limited Depth to saturated zone Ponding	1.00 1.00
Emrick-----	8	Very limited Depth to saturated zone Seepage	1.00 0.92
Vallers-----	7	Very limited Depth to saturated zone Seepage	1.00 0.50
J50A: Balaton-----	45	Very limited Depth to saturated zone Seepage	1.00 0.50
Tara-----	35	Very limited Depth to saturated zone Seepage	1.00 0.53
McIntosh-----	10	Very limited Depth to saturated zone Seepage	1.00 0.50
Well drained soils--	5	Somewhat limited Depth to saturated zone Seepage Slope	0.78 0.50 0.08
Winger-----	5	Very limited Depth to saturated zone Seepage	1.00 0.50
J51A: Bearden-----	60	Very limited Depth to saturated zone Seepage	1.00 0.27

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
<b>J51A:</b>			
Quam, depressional--	30	Very limited	
		Depth to saturated zone	1.00
		Ponding	1.00
Rondell-----	7	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.18
Winger-----	3	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.50
<b>J52A:</b>			
Rondell-----	85	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.18
Zell-----	9	Somewhat limited	
		Seepage	0.53
		Slope	0.32
Bearden-----	6	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.27
<b>J53A:</b>			
Ortonville-----	85	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.92
Well drained soils--	10	Somewhat limited	
		Seepage	0.92
		Depth to saturated zone	0.78
		Slope	0.08
Vallars-----	5	Very limited	
		Depth to saturated zone	1.00
		Seepage	0.50
<b>J54A:</b>			
Marysland, depressional-----	90	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00
		Ponding	1.00
Marysland soils that are not ponded-----	10	Very limited	
		Seepage	1.00
		Depth to saturated zone	1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J55A: Sedgeville-----	90	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
Soils that are frequently flooded	10	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
J56A: Winger-----	40	Very limited Depth to saturated zone Seepage	1.00 0.50
Balaton-----	30	Very limited Depth to saturated zone Seepage	1.00 0.50
Parnell, depressional-----	20	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone Seepage	1.00 0.27
Vallers-----	5	Very limited Depth to saturated zone Seepage	1.00 0.50
J57A: Balaton-----	85	Very limited Depth to saturated zone Seepage	1.00 0.50
Well drained soils--	5	Somewhat limited Depth to saturated zone Seepage Slope	0.78 0.50 0.08
Tara-----	5	Very limited Depth to saturated zone Seepage	1.00 0.50

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J57A: Vallers-----	5	Very limited Depth to saturated zone Seepage	1.00 0.50
J58B: Torning-----	45	Very limited Seepage Slope	1.00 0.32
Egeland-----	40	Very limited Seepage Slope	1.00 0.08
Clontarf-----	10	Very limited Seepage Depth to saturated zone	1.00 1.00
Sverdrup-----	5	Very limited Seepage Slope	1.00 0.32
J59A: Urness, sandy substratum-----	90	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.32
Marysland-----	10	Very limited Seepage Depth to saturated zone	1.00 1.00
J60B: Hattie-----	46	Very limited Depth to saturated zone Slope	1.00 0.08
Audubon-----	44	Very limited Depth to saturated zone	1.00
Foxlake-----	10	Very limited Depth to saturated zone	1.00
J60C: Hattie-----	60	Very limited Depth to saturated zone Slope	1.00 1.00
Audubon-----	30	Very limited Depth to saturated zone Slope	1.00 1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J60C: Foxlake-----	10	Very limited Depth to saturated zone	1.00
J61A: Svea, bouldery-----	90	Very limited Depth to saturated zone Seepage	1.00 0.53
Vallars, bouldery---	5	Very limited Depth to saturated zone Seepage	1.00 0.50
Parnell, depressional-----	5	Very limited Depth to saturated zone Ponding	1.00 1.00
J62C: Buse, very bouldery	45	Somewhat limited Slope Seepage	0.92 0.50
Barnes, very bouldery-----	25	Very limited Slope Seepage	1.00 0.53
Hokans-----	15	Somewhat limited Depth to saturated zone Seepage Slope	0.78 0.50 0.08
Svea, bouldery-----	10	Very limited Depth to saturated zone Seepage	1.00 0.53
Darnen-----	5	Somewhat limited Depth to saturated zone Seepage Slope	0.78 0.50 0.32
J62F: Buse, very bouldery	50	Very limited Slope Seepage	1.00 0.50
Barnes, very bouldery-----	40	Very limited Slope Seepage	1.00 0.53

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J62F: Darnen-----	10	Somewhat limited Depth to saturated zone Slope Seepage	 0.78 0.68 0.50
J63A: Ortonville-----	45	Very limited Depth to saturated zone Seepage	 1.00 0.92
Vallers-----	35	Very limited Depth to saturated zone Seepage	 1.00 0.50
Parnell, depressional-----	20	Very limited Depth to saturated zone Ponding	 1.00 1.00
J64A: Quam-----	90	Very limited Depth to saturated zone	 1.00
Colvin-----	5	Very limited Depth to saturated zone Seepage	 1.00 0.27
Quam, depressional--	5	Very limited Depth to saturated zone Ponding	 1.00 1.00
J65A: Shakopee-----	90	Very limited Seepage Depth to saturated zone	 1.00 1.00
Soils in depressions	10	Very limited Seepage Depth to saturated zone Ponding	 1.00 1.00 1.00
J66A: Emrick-----	85	Very limited Depth to saturated zone Seepage	 1.00 0.92
Lakepark-----	10	Very limited Depth to saturated zone Seepage	 1.00 0.50

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
J66A: Heimdal-----	5	Somewhat limited Seepage Slope	0.92 0.08
J67A: Fordtown-----	85	Very limited Seepage Depth to saturated zone	1.00 0.78
Renshaw-----	8	Very limited Seepage	1.00
Spottswood-----	7	Very limited Seepage Depth to saturated zone	1.00 1.00
J68A: Kerkhoven-----	55	Very limited Depth to saturated zone Seepage	1.00 0.50
Friberg, depressional-----	35	Very limited Depth to saturated zone Ponding Seepage	1.00 1.00 0.53
Emrick-----	10	Very limited Depth to saturated zone Seepage	1.00 0.92
L33B: Kandiyohi-----	85	Very limited Depth to saturated zone Slope	1.00 0.08
Cosmos-----	10	Very limited Depth to saturated zone	1.00
Okoboji-----	5	Very limited Depth to saturated zone Ponding	1.00 1.00
L34A: Cosmos-----	85	Very limited Depth to saturated zone	1.00
Kandiyohi-----	10	Very limited Depth to saturated zone	1.00

Table 11a.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	Sewage lagoons	
		Rating class and limiting features	Value
L34A:			
Okoboji-----	5	Very limited	
		Depth to	1.00
		saturated zone	
		Ponding	1.00
M-W:			
Water, miscellaneous	100	Not rated	
W:			
Water-----	100	Not rated	

Table 11b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component name	Pct. of map unit	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
GP:							
Pits, gravel-----	80	Not rated		Not rated		Not rated	
Udipsamments-----	20	Not rated		Not rated		Not rated	
J1A:							
Parnell, depressional-----	90	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact Ponding	1.00 1.00 1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J2A:							
La Prairie-----	90	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.50
Lamoure-----	10	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
J3A:							
Arveson-----	80	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Marysland-----	10	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Marysland, depressional-----	5	Very limited Depth to saturated zone Seepage Too sandy Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage Ponding	1.00 1.00 1.00 1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J3A: Malachy-----	5	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage Too sandy Depth to saturated zone	1.00 0.50 0.50
J4A: Rockwell-----	90	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone	1.00
Arveson-----	10	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
J5A: Fossum-----	85	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Arveson-----	10	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Fossum, depressional	3	Very limited Depth to saturated zone Seepage Too sandy Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage Ponding	1.00 1.00 1.00 1.00
Hecla-----	2	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 0.50
J6A: McDonaldsville-----	90	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Somewhat poorly drained soils-----	10	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too sandy Seepage Too clayey Depth to saturated zone	1.00 1.00 1.00 1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J7A:							
Sverdrup-----	85	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage	1.00 1.00
Arveson-----	5	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Clontarf-----	5	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 1.00
Egeland-----	5	Very limited Too sandy Seepage	1.00 1.00	Very limited Seepage	1.00	Somewhat limited Seepage Too sandy	0.50 0.50
J7B:							
Sverdrup-----	90	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage	1.00 1.00
Clontarf-----	5	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 1.00
Egeland-----	5	Very limited Too sandy Seepage	1.00 1.00	Very limited Seepage	1.00	Somewhat limited Seepage Too sandy	0.50 0.50
J8A:							
Egeland-----	80	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.50
Clontarf-----	10	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 1.00
Sverdrup-----	5	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage	1.00 1.00
Arveson-----	3	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Hantho-----	2	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
<b>J8B:</b>							
Egeland-----	80	Very limited Too sandy Seepage	1.00 1.00	Very limited Seepage	1.00	Somewhat limited Seepage Too sandy	0.50 0.50
Clontarf-----	8	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 1.00
Sverdrup-----	5	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage	1.00 1.00
Torning-----	3	Very limited Too sandy Seepage	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage	1.00 0.50
Eckman-----	2	Not limited		Not limited		Not limited	
Egeland, eroded----	2	Very limited Too sandy Seepage	1.00 1.00	Very limited Seepage	1.00	Somewhat limited Seepage Too sandy	0.50 0.50
<b>J9A:</b>							
Estelline-----	90	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage	1.00 1.00
Soils that have a thin surface layer	10	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage Gravel content	1.00 1.00 0.03
<b>J10A:</b>							
Sinai-----	90	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 0.50
Fulda-----	10	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 1.00
<b>J10B:</b>							
Sinai-----	90	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 0.50
Fulda-----	10	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J11A: Vallers-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	10	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact Ponding	1.00 1.00 1.00
Balaton-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
J12A: Marysland-----	85	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00
Arveson-----	10	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00
Marysland, depressional-----	3	Very limited Depth to saturated zone Seepage Too sandy Ponding	1.00 1.00	Very limited Depth to saturated zone Seepage Ponding	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage Ponding	1.00 1.00 1.00
Malachy-----	2	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage Too sandy Depth to saturated zone	1.00 0.50 0.50
J13A: Oldham-----	90	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J14F:							
Esmond-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Emrick-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Heimdal-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
J15B:							
Eckman-----	80	Not limited		Not limited		Not limited	
Eckman, eroded-----	5	Not limited		Not limited		Not limited	
Egeland-----	5	Very limited Too sandy Seepage	1.00 1.00	Very limited Seepage	1.00	Somewhat limited Seepage Too sandy	0.50 0.50
Hantho-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Zell-----	5	Not limited		Not limited		Not limited	
J16A:							
Friberg, depressional-----	90	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50
Kerkhoven-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J17A:							
Quam, depressional--	90	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J18A:							
Malachy-----	85	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage Too sandy Depth to saturated zone	1.00 0.50 0.50

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J18A:							
Arveson-----	5	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Well drained soils--	5	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Somewhat limited Seepage Too sandy	0.50 0.50
Clontarf-----	5	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 1.00
J19A:							
Hecla-----	80	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 0.50
Clontarf-----	10	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 1.00
Sverdrup-----	5	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage	1.00 1.00
Hamar-----	3	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 0.50
Malachy-----	2	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage Too sandy Depth to saturated zone	1.00 0.50 0.50
J20A:							
Clontarf-----	80	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Depth to saturated zone Seepage	1.00 1.00 1.00
Hecla-----	10	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 0.50

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
<b>J20A:</b>							
Arveson-----	5	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Well drained soils--	5	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Somewhat limited Seepage Too sandy	0.50 0.50
<b>J21A:</b>							
Hamar-----	85	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 0.50
Less sandy soils----	8	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Arveson-----	4	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
Hecla-----	3	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 0.50
<b>J22A:</b>							
Renshaw-----	85	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Gravel content Too sandy	1.00 0.75 0.50
Fordtown-----	10	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage Too sandy	1.00 0.50
Arvilla-----	3	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage Gravel content	1.00 1.00 0.74
Fordville-----	2	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too sandy Gravel content	1.00 0.50 0.20

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J23A:							
Lamoure-----	85	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
Rauville-----	10	Very limited Flooding Depth to saturated zone Seepage Too clayey	1.00 1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 0.50
La Prairie-----	5	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.50
J24F:							
Buse-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Darnen-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Barnes-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
J25A:							
Rauville-----	90	Very limited Flooding Depth to saturated zone Seepage Too clayey	1.00 1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Too clayey	1.00 0.50
Lamoure-----	10	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
J26B:							
Darnen-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Hokans-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Lakepark-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J27A:							
Hantho-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Eckman-----	5	Not limited		Not limited		Not limited	

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
<b>J27A:</b>							
Quam-----	5	Very limited Depth to saturated zone Too clayey	1.00  0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00  0.50
Rondell-----	3	Very limited Depth to saturated zone Too clayey	1.00  0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Too clayey Depth to saturated zone	0.50  0.50
Tara-----	2	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J28A:</b>							
Vallers, bouldery---	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	10	Very limited Depth to saturated zone Too clayey Ponding	1.00  1.00 1.00	Very limited Depth to saturated zone Ponding	1.00  1.00	Very limited Depth to saturated zone Too clayey Hard to compact Ponding	1.00  1.00 1.00 1.00
<b>J29A:</b>							
Cathro-----	90	Very limited Depth to saturated zone Ponding	1.00  1.00	Very limited Depth to saturated zone Ponding	1.00  1.00	Very limited Depth to saturated zone Ponding	1.00  1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J30A:</b>							
Tara-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Balaton-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Byrne-----	3	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Quam-----	2	Very limited Depth to saturated zone Too clayey	1.00  0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00  0.50

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J31B:							
Arvilla-----	45	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage Gravel content	1.00 1.00 0.74
Sandberg-----	30	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage Gravel content	1.00 1.00 0.96
Renshaw-----	10	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Gravel content Too sandy	1.00 0.75 0.50
Sioux-----	10	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage Gravel content	1.00 1.00 1.00
Fordtown-----	5	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage Too sandy	1.00 0.50
J32A:							
Bigstone-----	80	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Urness-----	10	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J33D2:							
Sisseton, eroded----	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Heimdal, eroded----	10	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96
Esmond, eroded----	10	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
Heimdal, slightly eroded-----	5	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J33D2: Emrick-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
J34B: Byrne-----	45	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Buse-----	35	Not limited		Not limited		Not limited	
Buse, eroded-----	10	Not limited		Not limited		Not limited	
Hokans-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Tara-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J35B: Hokans-----	45	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Buse-----	30	Not limited		Not limited		Not limited	
Barnes-----	10	Not limited		Not limited		Not limited	
Buse, eroded-----	10	Not limited		Not limited		Not limited	
Svea-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
J36C2: Buse, eroded-----	45	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
Barnes, eroded-----	20	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
Barnes, slightly eroded-----	10	Not limited		Not limited		Not limited	
Buse, slightly eroded-----	10	Not limited		Not limited		Not limited	
Darnen-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Langhei, eroded-----	5	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96
J37D2: Langhei, eroded-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J37D2:							
Barnes, eroded-----	15	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96
Buse, eroded-----	10	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Darnen-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Barnes, slightly eroded-----	5	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
J38B:							
Zell-----	41	Not limited		Not limited		Not limited	
Eckman-----	39	Not limited		Not limited		Not limited	
Zell, eroded-----	10	Not limited		Not limited		Not limited	
Egeland-----	5	Very limited Too sandy Seepage	1.00 1.00	Very limited Seepage	1.00	Somewhat limited Seepage Too sandy	0.50 0.50
Hantho-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J38C2:							
Zell, eroded-----	45	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
Eckman, eroded-----	20	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
Zell, slightly eroded-----	15	Not limited		Not limited		Not limited	
Hantho-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Eckman, slightly eroded-----	5	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
Egeland-----	5	Very limited Too sandy Seepage Slope	1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Somewhat limited Seepage Too sandy Slope	0.50 0.50 0.16
J39A:							
Udorthents-----	100	Not rated		Not rated		Not rated	

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J40A:							
Foxlake-----	85	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Depth to saturated zone Hard to compact	1.00 1.00 1.00
Audubon-----	5	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 0.50
Calcareous soils----	5	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Depth to saturated zone Hard to compact	1.00 1.00 1.00
Soils in depressions	5	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact Ponding	1.00 1.00 1.00 1.00
J41A:							
Urness-----	80	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50
Bigstone-----	10	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J42C:							
Sandberg-----	60	Very limited Seepage Too sandy Slope	1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Very limited Too sandy Seepage Gravel content Slope	1.00 1.00 0.94 0.16
Arvilla-----	30	Very limited Seepage Too sandy Slope	1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Very limited Too sandy Seepage Gravel content Slope	1.00 1.00 0.74 0.16
Everts-----	10	Very limited Seepage	1.00	Not limited		Not limited	

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J43A:							
Quam, depressional--	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Cathro-----	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Urness-----	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J44B:							
Esmond-----	45	Not limited		Not limited		Not limited	
Heimdal-----	40	Not limited		Not limited		Not limited	
Esmond, eroded-----	10	Not limited		Not limited		Not limited	
Emrick-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
J44C2:							
Esmond, eroded-----	40	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
Heimdal, eroded-----	25	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
Esmond, slightly eroded-----	15	Not limited		Not limited		Not limited	
Heimdal, slightly eroded-----	10	Not limited		Not limited		Not limited	
Emrick-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Sisseton, eroded----	5	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J45F:							
Sandberg-----	80	Very limited Seepage Too sandy Slope	1.00 1.00 1.00	Very limited Seepage Slope	1.00 1.00	Very limited Too sandy Seepage Slope Gravel content	1.00 1.00 1.00 0.73
Everts-----	10	Very limited Seepage	1.00	Not limited		Not limited	
Arvilla-----	5	Very limited Seepage Too sandy Slope	1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Very limited Too sandy Seepage Slope Gravel content	1.00 1.00 0.16 0.08
Sioux-----	5	Very limited Seepage Too sandy Slope	1.00 1.00 1.00	Very limited Seepage Slope	1.00 1.00	Very limited Too sandy Seepage Slope Gravel content	1.00 1.00 1.00 1.00
J46B:							
Byrne-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Hokans-----	7	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Buse-----	5	Not limited		Not limited		Not limited	
Quam-----	3	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00 0.50
J47A:							
Swenoda-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Somewhat limited Depth to saturated zone	0.50
Clontarf-----	10	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 1.00
Egeland-----	5	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.50
J48A:							
Bigstone-----	40	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 0.50

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J48A:							
Parnell-----	40	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00 1.00
Colvin-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J49A:							
Lakepark-----	50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	35	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact Ponding	1.00 1.00 1.00 1.00
Emrick-----	8	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Vallers-----	7	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J50A:							
Balaton-----	45	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Tara-----	35	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
McIntosh-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Well drained soils--	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Winger-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
<b>J51A:</b>							
Bearden-----	60	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Quam, depressional--	30	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50
Rondell-----	7	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Too clayey Depth to saturated zone	0.50 0.50
Winger-----	3	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J52A:</b>							
Rondell-----	85	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Too clayey Depth to saturated zone	0.50 0.50
Zell-----	9	Not limited		Not limited		Not limited	
Bearden-----	6	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J53A:</b>							
Ortonville-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Well drained soils--	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
<b>J54A:</b>							
Marysland, depressional-----	90	Very limited Depth to saturated zone Seepage Too sandy Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage Ponding	1.00 1.00 1.00 1.00
Marysland soils that are not ponded-----	10	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J55A: Sedgeville-----	90	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 0.50
Soils that are frequently flooded	10	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
J56A: Winger-----	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Balaton-----	30	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Parnell, depressional-----	20	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact Ponding	1.00 1.00 1.00 1.00
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
J57A: Balaton-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Well drained soils--	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Tara-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Vallers-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
<b>J58B:</b>							
Torning-----	45	Very limited Too sandy Seepage	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage	1.00 0.50
Egeland-----	40	Very limited Too sandy Seepage	1.00 1.00	Very limited Seepage	1.00	Somewhat limited Seepage Too sandy	0.50 0.50
Clontarf-----	10	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 1.00
Sverdrup-----	5	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too sandy Seepage	1.00 1.00
<b>J59A:</b>							
Urness, sandy substratum-----	90	Very limited Depth to saturated zone Ponding Seepage Too clayey	1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey	1.00 1.00 0.50
Marysland-----	10	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage	1.00 1.00 1.00
<b>J60B:</b>							
Hattie-----	46	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 0.50
Audubon-----	44	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 0.50
Foxlake-----	10	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Depth to saturated zone Hard to compact	1.00 1.00 1.00
<b>J60C:</b>							
Hattie-----	60	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 0.50

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J60C:							
Audubon-----	30	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 0.50
Foxlake-----	10	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Depth to saturated zone Hard to compact	1.00 1.00 1.00
J61A:							
Svea, bouldery-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Vallers, bouldery---	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	5	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact Ponding	1.00 1.00 1.00 1.00
J62C:							
Buse, very bouldery	45	Not limited		Not limited		Not limited	
Barnes, very bouldery-----	25	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Hokans-----	15	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
Svea, bouldery-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Darnen-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	
J62F:							
Buse, very bouldery	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Barnes, very bouldery-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Darnen-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited	

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J63A:							
Ortonville-----	45	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Vallers-----	35	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Parnell, depressional-----	20	Very limited Depth to saturated zone Too clayey Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact Ponding	1.00 1.00 1.00 1.00
J64A:							
Quam-----	90	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey	1.00 0.50
Colvin-----	5	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Quam, depressional--	5	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50
J65A:							
Shakopee-----	90	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage Too clayey	1.00 1.00 1.00 1.00
Soils in depressions	10	Very limited Depth to saturated zone Seepage Too sandy Ponding	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Too sandy Seepage Too clayey Ponding	1.00 1.00 1.00 1.00 1.00
J66A:							
Emrick-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
Lakepark-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Heimdal-----	5	Not limited		Not limited		Not limited	

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
J67A:							
Fordtown-----	85	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage Too sandy	1.00 0.50
Renshaw-----	8	Very limited Seepage Too sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Gravel content Too sandy	1.00 0.75 0.50
Spottswood-----	7	Very limited Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Seepage Depth to saturated zone Too sandy Gravel content	1.00 1.00 0.50 0.13
J68A:							
Kerkhoven-----	55	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Friberg, depression-----	35	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50
Emrick-----	10	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.50
L33B:							
Kandiyohi-----	85	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Hard to compact Depth to saturated zone Too clayey	1.00 1.00 0.50
Cosmos-----	10	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Hard to compact Too clayey	1.00 1.00 0.50
Okoboji-----	5	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Hard to compact Ponding Too clayey	1.00 1.00 1.00 0.50
L34A:							
Cosmos-----	85	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Hard to compact Too clayey	1.00 1.00 0.50

Table 11b.--Sanitary Facilities--Continued

Map symbol and component name	Pct. of map unit	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
L34A: Kandiyohi-----	10	Very limited Depth to saturated zone Too clayey	1.00  0.50	Very limited Depth to saturated zone	1.00	Very limited Hard to compact Depth to saturated zone Too clayey	1.00  1.00 0.50
Okoboji-----	5	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Hard to compact Ponding Too clayey	1.00 1.00 1.00 0.50
M-W: Water, miscellaneous	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

Table 12a.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. 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. See text for further explanation of ratings in this table)

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
GP:					
Pits, gravel-----	80	Not rated		Not rated	
Udipsamments-----	20	Not rated		Not rated	
J1A:					
Parnell, depressional-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Winger-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J2A:					
La Prairie-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lamoure-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J3A:					
Arveson-----	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.30
Marysland-----	10	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.79
Marysland, depressional-----	5	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.79
Malachy-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.10

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
<b>J4A:</b>					
Rockwell-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Arveson-----	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.30
<b>J5A:</b>					
Fossum-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.31
Arveson-----	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.30
Fossum, depressional	3	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.31
Hecla-----	2	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.12
<b>J6A:</b>					
McDonaldsville-----	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.64
Somewhat poorly drained soils-----	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.64
<b>J7A:</b>					
Sverdrup-----	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.64
Arveson-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.30
Clontarf-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
Egeland-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.07
Estelline-----	5	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.82
<b>J7B:</b>					
Sverdrup-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.64

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J7B:					
Clontarf-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
Egeland-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.07
Estelline-----	5	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.82
J8A:					
Egeland-----	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.10
Clontarf-----	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
Sverdrup-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.64
Arveson-----	3	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.30
Hantho-----	2	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J8B:					
Egeland-----	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.10
Clontarf-----	8	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
Sverdrup-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.64
Torning-----	3	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.14
Eckman-----	2	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Egeland, eroded----	2	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.10
		Thickest layer	0.00	Thickest layer	0.10

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J9A:					
Estelline-----	90	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.82
Soils that have a thin surface layer	10	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.82
J10A:					
Sinai-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Fulda-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J10B:					
Sinai-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Fulda-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J11A:					
Vallers-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Parnell, depressional-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Balaton-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J12A:					
Marysland-----	85	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.79
Arveson-----	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.30
Marysland, depressional-----	3	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.79
Malachy-----	2	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.10

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J13A:					
Oldham-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Colvin-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J14F:					
Esmond-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Emrick-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Heimdahl-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J15B:					
Eckman-----	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Eckman, eroded-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Egeland-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.10
Hantho-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Zell-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J16A:					
Friberg, depressional-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Kerkhoven-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J17A:					
Quam, depressional--	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J17A: Winger-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J18A: Malachy-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.10
Arveson-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.30
Well drained soils--	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.10
Clontarf-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
J19A: Hecla-----	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.12
Clontarf-----	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
Sverdrup-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.64
Hamar-----	3	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.07
Malachy-----	2	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.10
J20A: Clontarf-----	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
Hecla-----	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.12
Arveson-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.30

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J20A: Well drained soils--	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.10
J21A: Hamar-----	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.07
Less sandy soils----	8	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
Arveson-----	4	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.30
Hecla-----	3	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.12
J22A: Renshaw-----	85	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.08	Bottom layer	0.08
Fordtown-----	10	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.01	Bottom layer	0.10
Arvilla-----	3	Fair		Fair	
		Bottom layer	0.12	Bottom layer	0.42
		Thickest layer	0.12	Thickest layer	0.42
Fordville-----	2	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.01	Bottom layer	0.10
J23A: Lamoure-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rauville-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
La Prairie-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J24F: Buse-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J24F:					
Darnen-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Barnes-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J25A:					
Rauville-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lamoure-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J26B:					
Darnen-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Hokans-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lakepark-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J27A:					
Hantho-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Eckman-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Quam-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rondell-----	3	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tara-----	2	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J28A:					
Valliers, bouldery--	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J28A: Parnell, depressional-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J29A: Cathro-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Colvin-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J30A: Tara-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Balaton-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Byrne-----	3	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Quam-----	2	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J31B: Arvilla-----	45	Fair		Fair	
		Bottom layer	0.12	Bottom layer	0.42
		Thickest layer	0.12	Thickest layer	0.42
Sandberg-----	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
Renshaw-----	10	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.08	Bottom layer	0.08
Sioux-----	10	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.42	Bottom layer	0.64
Fordtown-----	5	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.01	Bottom layer	0.10

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J32A:					
Bigstone-----	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Urness-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Colvin-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J33D2:					
Sisseton, eroded----	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Heimdahl, eroded----	15	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Esmond, eroded----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Heimdahl, slightly eroded-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Emrick-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J34B:					
Byrne-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Buse-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Buse, eroded-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Hokans-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tara-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
<b>J35B:</b>					
Hokans-----	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Buse-----	15	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Balaton-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Barnes, eroded-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Svea-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
<b>J36C2:</b>					
Buse, eroded-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Barnes, eroded-----	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Barnes, slightly eroded-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Buse, slightly eroded-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Darnen-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Langhei, eroded-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
<b>J37D2:</b>					
Langhei, eroded-----	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Barnes, eroded-----	15	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Buse, eroded-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J37D2:					
Darnen-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Barnes, slightly eroded-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J38B:					
Zell-----	41	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Eckman-----	39	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Zell, eroded-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Egeland-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.07
Hantho-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J38C2:					
Zell, eroded-----	46	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Eckman, eroded-----	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Zell, slightly eroded-----	14	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Hantho-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Eckman, slightly eroded-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Egeland-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.07
J39A:					
Udorthents-----	100	Not rated		Not rated	

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J40A:					
Foxlake-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Audubon-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Calcareous soils----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Soils in depressions	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J41A:					
Urness-----	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bigstone-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Colvin-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J42C:					
Sandberg-----	60	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
Arvilla-----	30	Fair		Fair	
		Bottom layer	0.12	Bottom layer	0.42
		Thickest layer	0.12	Thickest layer	0.42
Everts-----	10	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.12	Bottom layer	0.53
J43A:					
Quam, depressional--	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cathro-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Urness-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J43A:					
Colvin-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J44B:					
Esmond-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Heimdal-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Esmond, eroded-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Emrick-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J44C2:					
Esmond, eroded-----	41	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Heimdal, eroded-----	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Esmond, slightly eroded-----	14	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Heimdal, slightly eroded-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Emrick-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Sisseton, eroded----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J45F:					
Sandberg-----	80	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.82
		Thickest layer	0.00	Thickest layer	0.82
Everts-----	10	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.12	Bottom layer	0.53

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J45F: Arvilla-----	5	Fair		Fair	
		Bottom layer	0.12	Bottom layer	0.42
		Thickest layer	0.12	Thickest layer	0.42
Sioux-----	5	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.42	Bottom layer	0.64
J46B: Byrne-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Hokans-----	7	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Buse-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Quam-----	3	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J47A: Swenoda-----	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.03
Clontarf-----	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
Egeland-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.10
J48A: Bigstone-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Parnell-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Colvin-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J49A: Lakepark-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J49A: Parnell, depressional-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Emrick-----	8	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Vallers-----	7	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
J50A: Balaton-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Tara-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
McIntosh-----	10	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Well drained soils--	5	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Winger-----	5	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
J51A: Bearden-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Quam, depressional--	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rondell-----	7	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Winger-----	3	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
J52A: Rondell-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Zell-----	9	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J52A: Bearden-----	6	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J53A: Ortonville-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Well drained soils--	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J54A: Marysland, depressional-----	90	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.79
Marysland soils that are not ponded-----	10	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.79
J55A: Sedgeville-----	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.06
		Thickest layer	0.00	Bottom layer	0.10
Soils that are frequently flooded	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.75
J56A: Winger-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Balaton-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Parnell, depressional-----	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Colvin-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J57A:					
Balaton-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Well drained soils--	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Tara-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	3	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Hamerly-----	2	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J58B:					
Torning-----	45	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.12
Egeland-----	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.07
Clontarf-----	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.34
Sverdrup-----	5	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.64
J59A:					
Urness, sandy substratum-----	90	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.79
Marysland-----	10	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.79
J60B:					
Hattie-----	46	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Audubon-----	44	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Foxlake-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J60C:					
Hattie-----	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Audubon-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Foxlake-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J61A:					
Svea, bouldery-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers, bouldery---	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Parnell, depressional-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J62C:					
Buse, very bouldery	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Barnes, very bouldery-----	26	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Hokans-----	14	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Svea, bouldery-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Darnen-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J62F:					
Buse, very bouldery	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Barnes, very bouldery-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J62F: Darnen-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J63A: Ortonville-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Vallers-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Parnell, depressional-----	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J64A: Quam-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Colvin-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Quam, depressional--	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J65A: Shakopee-----	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.64
Soils in depressions	10	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.64
J66A: Emrick-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lakepark-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Heimdahl-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
J67A: Fordtown-----	85	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.01	Bottom layer	0.10

Table 12a.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
J67A:					
Renshaw-----	8	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.08	Bottom layer	0.08
Spottswood-----	7	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.01	Bottom layer	0.10
J68A:					
Kerkhoven-----	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Friberg, depressional-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Emrick-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
L33B:					
Kandiyohi-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cosmos-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Okoboji-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
L34A:					
Cosmos-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Kandiyohi-----	10	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Okoboji-----	5	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
M-W:					
Water, miscellaneous	100	Not rated		Not rated	
W:					
Water-----	100	Not rated		Not rated	

Table 12b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component name	Pct. of map unit	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
GP:							
Pits, gravel-----	80	Not rated		Not rated		Not rated	
Udipsamments-----	20	Not rated		Not rated		Not rated	
J1A:							
Parnell, depressional-----	90	Fair		Poor		Poor	
		Too clayey	0.76	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Low content of organic matter	0.88	Low strength	0.00	Too clayey	0.76
		Water erosion	0.99	Shrink-swell	0.01		
Winger-----	5	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.68			Carbonate content	0.68
Vallers-----	5	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.80			Carbonate content	0.80
J2A:							
La Prairie-----	90	Good		Fair		Fair	
				Depth to saturated zone	0.88	Depth to saturated zone	0.88
				Shrink-swell	0.99		
Lamoure-----	10	Fair		Poor		Poor	
		Water erosion	0.90	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too clayey	0.99	Shrink-swell	0.99	Too clayey	0.99
J3A:							
Arveson-----	80	Fair		Poor		Poor	
		Carbonate content	0.80	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Low content of organic matter	0.88			Carbonate content	0.80
Marysland-----	10	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.68			Carbonate content	0.68
						Hard to reclaim	0.92
Marysland, depressional-----	5	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.68			Carbonate content	0.80
						Hard to reclaim	0.92

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J3A: Malachy-----	5	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88
J4A: Rockwell-----	90	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.97
Arveson-----	10	Fair Carbonate content Low content of organic matter	0.80 0.88	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
J5A: Fossum-----	85	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.12	Poor Depth to saturated zone	0.00	Poor Too sandy Depth to saturated zone	0.00 0.00
Arveson-----	10	Fair Carbonate content Low content of organic matter	0.80 0.88	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Fossum, depressional	3	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.12	Poor Depth to saturated zone	0.00	Poor Too sandy Depth to saturated zone	0.00 0.00
Hecla-----	2	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.50	Fair Depth to saturated zone	0.88	Poor Too sandy Depth to saturated zone	0.00 0.88
J6A: McDonaldsville-----	90	Poor Too clayey Low content of organic matter	0.00 0.12	Poor Depth to saturated zone Shrink-swell	0.00 0.70	Poor Depth to saturated zone Too clayey	0.00 0.00
Somewhat poorly drained soils-----	10	Poor Too clayey	0.00	Fair Shrink-swell Depth to saturated zone	0.12 0.12	Poor Too clayey Depth to saturated zone	0.00 0.12
J7A: Sverdrup-----	80	Fair Low content of organic matter	0.12	Good		Good	

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
<b>J7A:</b>							
Arveson-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Clontarf-----	5	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Fair Depth to saturated zone	0.06
Egeland-----	5	Fair Low content of organic matter	0.12	Good		Good	
Estelline-----	5	Fair Low content of organic matter	0.12	Good		Fair Hard to reclaim	0.82
<b>J7B:</b>							
Sverdrup-----	85	Fair Low content of organic matter	0.12	Good		Good	
Clontarf-----	5	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Fair Depth to saturated zone	0.06
Egeland-----	5	Fair Low content of organic matter	0.12	Good		Good	
Estelline-----	5	Fair Low content of organic matter	0.12	Good		Fair Hard to reclaim	0.82
<b>J8A:</b>							
Egeland-----	80	Fair Carbonate content	0.99	Good		Good	
Clontarf-----	10	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Fair Depth to saturated zone	0.06
Sverdrup-----	5	Fair Low content of organic matter Droughty	0.12 0.93	Good		Good	
Arveson-----	3	Fair Carbonate content Low content of organic matter	0.80 0.88	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Hantho-----	2	Fair Low content of organic matter Water erosion Carbonate content	0.50 0.90 0.99	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone Carbonate content	0.12 0.99

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J8B:							
Egeland-----	80	Fair Low content of organic matter	0.12	Good		Good	
Clontarf-----	8	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Fair Depth to saturated zone	0.06
Sverdrup-----	5	Fair Low content of organic matter Droughty	0.12 0.93	Good		Good	
Torning-----	3	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Carbonate content	0.84
Eckman-----	2	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Good		Good	
Egeland, eroded----	2	Fair Too sandy Low content of organic matter	0.02 0.12	Good		Fair Too sandy	0.02
J9A:							
Estelline-----	90	Fair Low content of organic matter Water erosion	0.12 0.90	Good		Poor Hard to reclaim	0.00
Soils that have a thin surface layer	10	Poor Too sandy Low content of organic matter Water erosion	0.00 0.12 0.90	Good		Poor Hard to reclaim Too sandy Rock fragments	0.00 0.00 0.00
J10A:							
Sinai-----	90	Poor Too clayey Carbonate content	0.00 0.92	Poor Low strength Shrink-swell Depth to saturated zone	0.00 0.00 0.88	Poor Too clayey Depth to saturated zone Carbonate content	0.00 0.88 0.92
Fulda-----	10	Poor Too clayey Carbonate content	0.00 0.92	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.00	Poor Depth to saturated zone Too clayey	0.00 0.00 0.00

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J10B: Sinai-----	90	Poor Too clayey	0.00	Poor Low strength Shrink-swell Depth to saturated zone	0.00 0.00 0.88	Poor Too clayey Depth to saturated zone	0.00 0.88
Fulda-----	10	Poor Too clayey Carbonate content	0.00 0.92	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.00	Poor Depth to saturated zone Too clayey	0.00 0.00
J11A: Vallers-----	85	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Parnell, depressional-----	10	Fair Too clayey Low content of organic matter Water erosion	0.76 0.88 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.01	Poor Depth to saturated zone Too clayey	0.00 0.76
Balaton-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.50	Fair Depth to saturated zone Carbonate content	0.50 0.80
J12A: Marysland-----	85	Fair Low content of organic matter Carbonate content	0.12 0.68	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content Hard to reclaim	0.00 0.68 0.92
Arveson-----	10	Fair Carbonate content Low content of organic matter	0.80 0.88	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Marysland, depressional-----	3	Fair Low content of organic matter Carbonate content	0.12 0.68	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content Hard to reclaim	0.00 0.80 0.92
Malachy-----	2	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88
J13A: Oldham-----	90	Fair Low content of organic matter Too clayey Water erosion	0.12 0.12 0.90	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.77	Poor Depth to saturated zone Too clayey	0.00 0.12

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J13A:							
Colvin-----	5	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.68	Low strength	0.00	Carbonate content	0.68
		Water erosion	0.90				
Vallers-----	5	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Carbonate content	0.80			Carbonate content	0.80
J14F:							
Esmond-----	85	Fair		Fair		Poor	
		Low content of organic matter	0.12	Slope	0.02	Slope	0.00
		Carbonate content	0.84			Carbonate content	0.84
Emrick-----	10	Fair		Fair		Fair	
		Low content of organic matter	0.12	Depth to saturated zone	0.88	Depth to saturated zone	0.88
		Carbonate content	0.84				
Heimdal-----	5	Fair		Fair		Poor	
		Low content of organic matter	0.12	Slope	0.98	Slope	0.00
		Carbonate content	0.84			Carbonate content	0.84
J15B:							
Eckman-----	80	Fair		Good		Good	
		Low content of organic matter	0.12				
		Carbonate content	0.80				
		Water erosion	0.90				
Eckman, eroded-----	5	Fair		Good		Good	
		Low content of organic matter	0.12				
		Carbonate content	0.80				
		Water erosion	0.90				
Egeland-----	5	Fair		Good		Good	
		Low content of organic matter	0.12				
Hantho-----	5	Fair		Fair		Fair	
		Low content of organic matter	0.50	Depth to saturated zone	0.12	Depth to saturated zone	0.12
		Water erosion	0.90			Carbonate content	0.99
		Carbonate content	0.99				
Zell-----	5	Fair		Good		Fair	
		Low content of organic matter	0.50			Carbonate content	0.80
		Carbonate content	0.80				
		Water erosion	0.90				

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J16A: Friberg, depressional-----	90	Fair Carbonate content	0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Kerkhoven-----	10	Fair Carbonate content	0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
J17A: Quam, depressional--	90	Good		Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.95	Poor Depth to saturated zone	0.00
Winger-----	5	Fair Low content of organic matter Carbonate content	0.12 0.68	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
Vallers-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
J18A: Malachy-----	85	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88
Arveson-----	5	Fair Carbonate content Low content of organic matter	0.80 0.88	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Well drained soils--	5	Fair Low content of organic matter	0.12	Good		Good	
Clontarf-----	5	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Fair Depth to saturated zone	0.06
J19A: Hecla-----	80	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.50	Fair Depth to saturated zone	0.88	Poor Too sandy Depth to saturated zone	0.00 0.88
Clontarf-----	10	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Fair Depth to saturated zone	0.06
Sverdrup-----	5	Fair Low content of organic matter Droughty	0.12 0.93	Good		Good	

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J19A: Hamar-----	3	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.12	Poor Depth to saturated zone	0.00	Poor Too sandy Depth to saturated zone	0.00 0.00
Malachy-----	2	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88
J20A: Clontarf-----	80	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Fair Depth to saturated zone	0.06
Hecla-----	10	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.50	Fair Depth to saturated zone	0.88	Poor Too sandy Depth to saturated zone	0.00 0.88
Arveson-----	5	Fair Carbonate content Low content of organic matter	0.80 0.88	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Well drained soils--	5	Fair Low content of organic matter	0.12	Good		Good	
J21A: Hamar-----	85	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.12	Poor Depth to saturated zone	0.00	Poor Too sandy Depth to saturated zone	0.00 0.00
Less sandy soils----	8	Poor Wind erosion Low content of organic matter	0.00 0.12	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Arveson-----	4	Fair Carbonate content Low content of organic matter	0.80 0.88	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Hecla-----	3	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.50	Fair Depth to saturated zone	0.88	Poor Too sandy Depth to saturated zone	0.00 0.88
J22A: Renshaw-----	85	Fair Low content of organic matter Too sandy Droughty	0.12 0.14 0.89	Good		Poor Rock fragments Hard to reclaim Too sandy	0.00 0.00 0.14

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
<b>J22A:</b>							
Fordtown-----	10	Fair Low content of organic matter	0.12	Good		Poor Hard to reclaim	0.00
Arvilla-----	3	Poor Too sandy Low content of organic matter Droughty	0.00 0.12 0.59	Good		Poor Hard to reclaim Rock fragments Too sandy	0.00 0.00 0.00
Fordville-----	2	Fair Low content of organic matter	0.12	Good		Poor Hard to reclaim	0.00
<b>J23A:</b>							
Lamoure-----	85	Fair Water erosion Too clayey	0.90 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.98	Poor Depth to saturated zone Too clayey	0.00 0.99
Rauville-----	10	Fair Too clayey	0.98	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.98	Poor Depth to saturated zone Too clayey	0.00 0.98
La Prairie-----	5	Fair Carbonate content	0.92	Fair Depth to saturated zone Shrink-swell	0.88 0.99	Fair Depth to saturated zone	0.88
<b>J24F:</b>							
Buse-----	85	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Slope	0.02	Poor Slope Carbonate content	0.00 0.80
Darnen-----	10	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength	0.00	Good	
Barnes-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Slope	0.98	Poor Slope Carbonate content	0.00 0.80
<b>J25A:</b>							
Rauville-----	90	Fair Too clayey	0.98	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.98	Poor Depth to saturated zone Too clayey	0.00 0.98
Lamoure-----	10	Fair Water erosion Too clayey	0.90 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.98	Poor Depth to saturated zone Too clayey	0.00 0.99

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J26B: Darnen-----	90	Fair Low content of organic matter Water erosion	0.88 0.99	Poor Low strength	0.00	Good	
Hokans-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Lakepark-----	5	Fair Low content of organic matter	0.12	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
J27A: Hantho-----	85	Fair Low content of organic matter Water erosion Carbonate content	0.50 0.90 0.99	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone Carbonate content	0.12 0.99
Eckman-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Good		Good	
Quam-----	5	Good		Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.97	Poor Depth to saturated zone	0.00
Rondell-----	3	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.32 0.90	Poor Low strength Depth to saturated zone	0.00 0.88	Fair Carbonate content Depth to saturated zone	0.32 0.88
Tara-----	2	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.92 0.99	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone	0.12
J28A: Vallars, bouldery---	90	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Parnell, depressional-----	10	Fair Too clayey Water erosion	0.76 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.02	Poor Depth to saturated zone Too clayey	0.00 0.76

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
<b>J29A:</b>							
Cathro-----	90	Poor Wind erosion	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Rock fragments	0.00 0.97
Colvin-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Poor Depth to saturated zone Low strength	0.00 0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
Vallers-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
<b>J30A:</b>							
Tara-----	90	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.92 0.99	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone	0.12
Balaton-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.50	Fair Depth to saturated zone Carbonate content	0.50 0.80
Byrne-----	3	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Good	
Quam-----	2	Good		Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.97	Poor Depth to saturated zone	0.00
<b>J31B:</b>							
Arvilla-----	45	Poor Too sandy Low content of organic matter Droughty	0.00 0.12 0.59	Good		Poor Too sandy Hard to reclaim Rock fragments	0.00 0.00 0.00
Sandberg-----	30	Poor Too sandy Droughty Low content of organic matter Carbonate content	0.00 0.09 0.12 0.97	Good		Poor Too sandy Hard to reclaim Rock fragments Carbonate content	0.00 0.00 0.00 0.97
Renshaw-----	10	Fair Low content of organic matter Too sandy Droughty	0.12 0.14 0.87	Good		Poor Rock fragments Hard to reclaim Too sandy	0.00 0.00 0.14

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J31B: Sioux-----	10	Poor Too sandy Low content of organic matter Droughty	0.00 0.12 0.29	Good		Poor Rock fragments Hard to reclaim Too sandy	0.00 0.00 0.00
Fordtown-----	5	Fair Low content of organic matter	0.12	Good		Poor Hard to reclaim	0.00
J32A: Bigstone-----	80	Fair Low content of organic matter Carbonate content	0.12 0.97	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.97
Urness-----	10	Fair Low content of organic matter	0.12	Poor Depth to saturated zone Shrink-swell	0.00 0.99	Poor Depth to saturated zone	0.00
Colvin-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Poor Depth to saturated zone Low strength	0.00 0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
Vallers-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
J33D2: Sisseton, eroded----	65	Fair Low content of organic matter Carbonate content	0.12 0.84	Fair Slope	0.92	Poor Slope Carbonate content	0.00 0.84
Heimdal, eroded----	15	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Slope Carbonate content	0.04 0.84
Esmond, eroded-----	10	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Slope Carbonate content	0.84 0.84
Heimdal, slightly eroded-----	5	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Slope	0.04
Emrick-----	5	Fair Low content of organic matter Carbonate content	0.12 0.84	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
<b>J34B:</b>							
Byrne-----	45	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Good	
Buse-----	35	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Buse, eroded-----	10	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Hokans-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Tara-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.92 0.99	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone	0.12
<b>J35B:</b>							
Hokans-----	55	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Buse-----	15	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Balaton-----	10	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.50	Fair Depth to saturated zone Carbonate content	0.50 0.80
Barnes, eroded-----	10	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Svea-----	10	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.88	Fair Carbonate content Depth to saturated zone	0.80 0.88
<b>J36C2:</b>							
Buse, eroded-----	45	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content Slope	0.80 0.84

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J36C2: Barnes, eroded-----	20	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content Slope	0.80 0.84
Barnes, slightly eroded-----	10	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Buse, slightly eroded-----	10	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Darnen-----	10	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength	0.00	Good	
Langhei, eroded-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Slope	0.04
J37D2: Langhei, eroded-----	60	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Slope	0.92	Poor Slope	0.00
Barnes, eroded-----	15	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Slope Carbonate content	0.04 0.80
Buse, eroded-----	10	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Slope	0.92	Poor Slope Carbonate content	0.00 0.80
Darnen-----	10	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength	0.00	Good	
Barnes, slightly eroded-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Slope	0.92	Poor Slope Carbonate content	0.00 0.80
J38B: Zell-----	41	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.80 0.90	Good		Fair Carbonate content	0.80

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J38B: Eckman-----	39	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Good		Good	
Zell, eroded-----	10	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Good		Fair Carbonate content	0.80
Egeland-----	5	Fair Low content of organic matter	0.12	Good		Good	
Hantho-----	5	Fair Low content of organic matter Water erosion Carbonate content	0.50 0.90 0.99	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone Carbonate content	0.12 0.99
J38C2: Zell, eroded-----	46	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Good		Fair Carbonate content Slope	0.80 0.84
Eckman, eroded-----	20	Fair Carbonate content Low content of organic matter Water erosion	0.80 0.88 0.90	Good		Fair Slope	0.84
Zell, slightly eroded-----	14	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.80 0.90	Good		Fair Carbonate content	0.80
Hantho-----	10	Fair Low content of organic matter Water erosion Carbonate content	0.50 0.90 0.99	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone Carbonate content	0.12 0.99
Eckman, slightly eroded-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.80 0.90	Good		Fair Slope	0.84
Egeland-----	5	Fair Low content of organic matter	0.12	Good		Fair Slope	0.84

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J39A: Udorthents-----	100	Not rated		Not rated		Not rated	
J40A: Foxlake-----	85	Poor Too clayey Low content of organic matter Carbonate content Water erosion	0.00 0.12 0.68 0.90	Poor Depth to saturated zone Shrink-swell	0.00 0.00 0.00	Poor Depth to saturated zone Too clayey	0.00 0.00 0.00
Audubon-----	5	Poor Too clayey Low content of organic matter Carbonate content Water erosion	0.00 0.12 0.80 0.90	Poor Shrink-swell Depth to saturated zone	0.00 0.88 0.00	Poor Too clayey Carbonate content Depth to saturated zone	0.00 0.80 0.88
Calcareous soils----	5	Poor Too clayey Low content of organic matter Carbonate content Water erosion	0.00 0.12 0.68 0.90	Poor Shrink-swell Depth to saturated zone	0.00 0.00 0.00	Poor Depth to saturated zone Too clayey Carbonate content	0.00 0.00 0.00 0.68
Soils in depressions	5	Poor Too clayey Low content of organic matter Carbonate content Water erosion	0.00 0.12 0.68 0.90	Poor Depth to saturated zone Shrink-swell	0.00 0.00 0.00	Poor Depth to saturated zone Too clayey	0.00 0.00 0.00
J41A: Urness-----	80	Fair Low content of organic matter	0.12	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Bigstone-----	10	Fair Low content of organic matter Carbonate content	0.12 0.97	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.97
Colvin-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Poor Depth to saturated zone Low strength	0.00 0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
Vallers-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
J42C: Sandberg-----	60	Poor Too sandy Droughty Low content of organic matter Carbonate content	0.00 0.12 0.12 0.97	Good		Poor Too sandy Hard to reclaim Rock fragments Slope	0.00 0.00 0.00 0.84

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
<b>J42C:</b>							
Arvilla-----	30	Poor Too sandy Low content of organic matter Droughty	0.00 0.12 0.59	Good		Poor Too sandy Hard to reclaim Rock fragments Slope	0.00 0.00 0.00 0.84
Everts-----	10	Good		Good		Fair Hard to reclaim	0.50
<b>J43A:</b>							
Quam, depressional--	30	Good		Poor Low strength Depth to saturated zone	0.00 0.00	Poor Depth to saturated zone	0.00
Cathro-----	30	Good		Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Content of organic matter	0.00 0.22
Urness-----	30	Fair Carbonate content	0.97	Poor Depth to saturated zone Low strength	0.00 0.00	Poor Depth to saturated zone Carbonate content	0.00 0.97
Colvin-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Poor Low strength Depth to saturated zone	0.00 0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
Vallers-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
<b>J44B:</b>							
Esmond-----	45	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Carbonate content	0.84
Heimdal-----	40	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Carbonate content	0.84
Esmond, eroded-----	10	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Carbonate content	0.84
Emrick-----	5	Fair Low content of organic matter Carbonate content	0.12 0.84	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J44C2: Esmond, eroded-----	41	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Slope Carbonate content	0.84 0.84
Heimdal, eroded-----	25	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Slope Carbonate content	0.84 0.84
Esmond, slightly eroded-----	14	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Carbonate content	0.84
Heimdal, slightly eroded-----	10	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Good	
Emrick-----	5	Fair Low content of organic matter Carbonate content	0.12 0.84	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88
Sisseton, eroded----	5	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Slope Carbonate content	0.04 0.84
J45F: Sandberg-----	80	Poor Too sandy Low content of organic matter Droughty Carbonate content	0.00 0.12 0.47 0.99	Fair Slope	0.50	Poor Too sandy Slope Hard to reclaim Rock fragments Carbonate content	0.00 0.00 0.00 0.00 0.99
Everts-----	10	Good		Good		Fair Hard to reclaim	0.50
Arvilla-----	5	Poor Too sandy Low content of organic matter Droughty	0.00 0.12 0.59	Good		Poor Rock fragments Too sandy Hard to reclaim Slope	0.00 0.00 0.50 0.84
Sioux-----	5	Poor Too sandy Low content of organic matter Droughty	0.00 0.12 0.29	Fair Slope	0.50	Poor Too sandy Rock fragments Hard to reclaim Slope	0.00 0.00 0.00 0.00
J46B: Byrne-----	85	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Good	

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J46B: Hokans-----	7	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Buse-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Quam-----	3	Good		Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.00 0.97	Poor Depth to saturated zone	0.00
J47A: Swenoda-----	85	Fair Low content of organic matter Water erosion	0.12 0.90	Poor Low strength Depth to saturated zone	0.00 0.88	Fair Depth to saturated zone	0.88
Clontarf-----	10	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Fair Depth to saturated zone	0.06
Egeland-----	5	Fair Low content of organic matter	0.88	Good		Good	
J48A: Bigstone-----	40	Fair Carbonate content	0.97	Poor Depth to saturated zone Shrink-swell	0.00 0.98	Poor Depth to saturated zone Carbonate content	0.00 0.97
Parnell-----	40	Fair Too clayey Low content of organic matter Water erosion	0.76 0.88 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.01	Poor Depth to saturated zone Too clayey	0.00 0.76
Colvin-----	10	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Poor Depth to saturated zone Low strength	0.00 0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
Vallers-----	10	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
J49A: Lakepark-----	50	Fair Low content of organic matter	0.12	Poor Depth to saturated zone Shrink-swell	0.00 0.99	Poor Depth to saturated zone	0.00

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J49A: Parnell, depressional-----	35	Fair Too clayey Water erosion	0.76 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.02	Poor Depth to saturated zone Too clayey	0.00 0.76
Emrick-----	8	Fair Low content of organic matter Carbonate content	0.12 0.84	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88
Vallers-----	7	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
J50A: Balaton-----	45	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.50	Fair Depth to saturated zone Carbonate content	0.50 0.80
Tara-----	35	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone	0.12
McIntosh-----	10	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone Carbonate content	0.12 0.68
Well drained soils--	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Winger-----	5	Fair Low content of organic matter Carbonate content	0.12 0.68	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
J51A: Bearden-----	60	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.12 0.99	Fair Depth to saturated zone Carbonate content	0.12 0.68
Quam, depressional--	30	Fair Too clayey	0.95	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.00 0.95	Poor Depth to saturated zone Too clayey	0.00 0.95

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
<b>J51A:</b>							
Rondell-----	7	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.32 0.90	Poor Low strength Depth to saturated zone	0.00 0.88	Fair Carbonate content Depth to saturated zone	0.32 0.88
Winger-----	3	Fair Low content of organic matter Carbonate content	0.12 0.68	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
<b>J52A:</b>							
Rondell-----	85	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.32 0.90	Poor Low strength Depth to saturated zone	0.00 0.88	Fair Carbonate content Depth to saturated zone	0.32 0.88
Zell-----	9	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.80 0.90	Good		Fair Carbonate content	0.80
Bearden-----	6	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.12 0.99	Fair Depth to saturated zone Carbonate content	0.12 0.68
<b>J53A:</b>							
Ortonville-----	85	Fair Low content of organic matter Carbonate content	0.12 0.84	Fair Depth to saturated zone	0.88	Fair Carbonate content Depth to saturated zone	0.84 0.88
Well drained soils--	10	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Carbonate content	0.84
Vallers-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
<b>J54A:</b>							
Marysland, depressional-----	90	Fair Low content of organic matter Carbonate content	0.12 0.68	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Marysland soils that are not ponded-----	10	Fair Low content of organic matter Carbonate content	0.12 0.68	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J55A: Sedgeville-----	90	Good		Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Rock fragments	0.00 0.97
Soils that are frequently flooded	10	Good		Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Rock fragments	0.00 0.97
J56A: Winger-----	40	Fair Low content of organic matter Carbonate content	0.12 0.68	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
Balaton-----	30	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.50	Fair Depth to saturated zone Carbonate content	0.50 0.80
Parnell, depressiona-----	20	Fair Too clayey Water erosion	0.76 0.99	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.00 0.02	Poor Depth to saturated zone Too clayey	0.00 0.00 0.76
Colvin-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Poor Depth to saturated zone Low strength	0.00 0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
Vallars-----	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
J57A: Balaton-----	85	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.50	Fair Depth to saturated zone Carbonate content	0.50 0.80
Well drained soils--	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Tara-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.92 0.99	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone	0.12

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J57A: Vallers-----	3	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Hamerly-----	2	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.12	Fair Depth to saturated zone Carbonate content	0.12 0.80
J58B: Torning-----	45	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Carbonate content	0.84
Egeland-----	40	Fair Low content of organic matter	0.12	Good		Good	
Clontarf-----	10	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Fair Depth to saturated zone	0.06
Sverdrup-----	5	Fair Low content of organic matter Droughty	0.12 0.93	Good		Good	
J59A: Urness, sandy substratum-----	90	Fair Carbonate content	0.92	Poor Depth to saturated zone Low strength	0.00 0.00	Poor Depth to saturated zone Carbonate content	0.00 0.97
Marysland-----	10	Fair Low content of organic matter Carbonate content	0.12 0.68	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
J60B: Hattie-----	46	Poor Too clayey Carbonate content	0.00 0.68	Poor Shrink-swell Depth to saturated zone	0.00 0.88	Poor Too clayey Depth to saturated zone Carbonate content	0.00 0.88 0.97
Audubon-----	44	Poor Too clayey Low content of organic matter Carbonate content Water erosion	0.00 0.12 0.80 0.90	Poor Shrink-swell Depth to saturated zone	0.00 0.88	Poor Too clayey Carbonate content Depth to saturated zone	0.00 0.80 0.88

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J60B: Foxlake-----	10	Poor Too clayey Low content of organic matter Carbonate content Water erosion	0.00 0.12 0.68 0.90	Poor Depth to saturated zone Shrink-swell	0.00 0.00 0.00	Poor Depth to saturated zone Too clayey	0.00 0.00 0.00
J60C: Hattie-----	60	Poor Too clayey Carbonate content	0.00 0.68	Poor Shrink-swell Depth to saturated zone	0.00 0.88	Poor Too clayey Depth to saturated zone Carbonate content	0.00 0.88 0.97
Audubon-----	30	Poor Too clayey Low content of organic matter Carbonate content Water erosion	0.00 0.12 0.80 0.90	Poor Shrink-swell Depth to saturated zone	0.00 0.88	Poor Too clayey Carbonate content Depth to saturated zone	0.00 0.80 0.88
Foxlake-----	10	Poor Too clayey Low content of organic matter Carbonate content Water erosion	0.00 0.12 0.68 0.90	Poor Depth to saturated zone Shrink-swell	0.00 0.00 0.00	Poor Depth to saturated zone Too clayey	0.00 0.00 0.00
J61A: Svea, bouldery-----	90	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.88	Fair Carbonate content Depth to saturated zone	0.80 0.88
Vallers, bouldery---	5	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Parnell, depression-----	5	Fair Too clayey Water erosion	0.76 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.02	Poor Depth to saturated zone Too clayey	0.00 0.76
J62C: Buse, very bouldery	45	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Barnes, very bouldery-----	26	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
<b>J62C:</b>							
Hokans-----	14	Fair Low content of organic matter Carbonate content	0.12 0.80	Good		Fair Carbonate content	0.80
Svea, bouldery-----	10	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.88	Fair Carbonate content Depth to saturated zone	0.80 0.88
Darnen-----	5	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength	0.00	Good	
<b>J62F:</b>							
Buse, very bouldery	50	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Slope	0.02	Poor Slope Carbonate content	0.00 0.80
Barnes, very bouldery-----	40	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Slope	0.02	Poor Slope Carbonate content	0.00 0.80
Darnen-----	10	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength	0.00	Good	
<b>J63A:</b>							
Ortonville-----	45	Fair Low content of organic matter Carbonate content	0.12 0.84	Fair Depth to saturated zone	0.88	Fair Carbonate content Depth to saturated zone	0.84 0.88
Vallers-----	35	Fair Low content of organic matter Carbonate content	0.12 0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Carbonate content	0.00 0.80
Parnell, depressional-----	20	Fair Too clayey Water erosion	0.76 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.02	Poor Depth to saturated zone Too clayey	0.00 0.76
<b>J64A:</b>							
Quam-----	90	Good		Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.95	Poor Depth to saturated zone	0.00

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J64A: Colvin-----	5	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.90	Poor Depth to saturated zone Low strength	0.00 0.00	Poor Depth to saturated zone Carbonate content	0.00 0.68
Quam, depressional--	5	Good		Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.95	Poor Depth to saturated zone	0.00
J65A: Shakopee-----	90	Poor Too clayey Carbonate content Low content of organic matter	0.00 0.08 0.12	Poor Depth to saturated zone Shrink-swell	0.00 0.60	Poor Too clayey Depth to saturated zone Carbonate content	0.00 0.00 0.08
Soils in depressions	10	Poor Too clayey Low content of organic matter Carbonate content	0.00 0.12 0.68	Poor Depth to saturated zone Shrink-swell	0.00 0.23	Poor Depth to saturated zone Too clayey Carbonate content	0.00 0.00 0.68
J66A: Emrick-----	85	Fair Low content of organic matter Carbonate content	0.12 0.84	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88
Lakepark-----	10	Fair Low content of organic matter	0.12	Poor Depth to saturated zone Shrink-swell	0.00 0.99	Poor Depth to saturated zone	0.00
Heimdal-----	5	Fair Low content of organic matter Carbonate content	0.12 0.84	Good		Fair Carbonate content	0.84
J67A: Fordtown-----	85	Fair Low content of organic matter	0.12	Good		Poor Hard to reclaim	0.00
Renshaw-----	8	Fair Low content of organic matter Too sandy Droughty	0.12 0.14 0.71	Good		Poor Rock fragments Hard to reclaim Too sandy	0.00 0.00 0.14
Spottswood-----	7	Fair Low content of organic matter	0.12	Fair Depth to saturated zone	0.06	Poor Hard to reclaim Depth to saturated zone	0.00 0.06

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
J68A:							
Kerkhoven-----	55	Fair Carbonate content	0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Friberg, depressional-----	35	Fair Carbonate content	0.80	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Emrick-----	10	Fair Low content of organic matter Carbonate content	0.12 0.84	Fair Depth to saturated zone	0.88	Fair Depth to saturated zone	0.88
L33B:							
Kandiyohi-----	85	Fair Too clayey Low content of organic matter Carbonate content Water erosion	0.01 0.50 0.80 0.99	Poor Low strength Shrink-swell Depth to saturated zone	0.00 0.02 0.12	Poor Too clayey Depth to saturated zone Carbonate content	0.00 0.12 0.80
Cosmos-----	10	Poor Too clayey Low content of organic matter Carbonate content	0.00 0.12 0.92	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.00	Poor Depth to saturated zone Too clayey	0.00 0.00
Okoboji-----	5	Fair Too clayey Water erosion	0.76 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.12	Poor Depth to saturated zone Too clayey	0.00 0.76
L34A:							
Cosmos-----	85	Poor Too clayey Low content of organic matter Carbonate content	0.00 0.12 0.92	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.00	Poor Depth to saturated zone Too clayey	0.00 0.00
Kandiyohi-----	10	Fair Too clayey Low content of organic matter Carbonate content Water erosion	0.01 0.50 0.80 0.99	Poor Low strength Shrink-swell Depth to saturated zone	0.00 0.02 0.12	Poor Too clayey Depth to saturated zone Carbonate content	0.00 0.12 0.80
Okoboji-----	5	Fair Too clayey Water erosion	0.76 0.99	Poor Depth to saturated zone Low strength Shrink-swell	0.00 0.00 0.12	Poor Depth to saturated zone Too clayey	0.00 0.76
M-W:							
Water, miscellaneous	100	Not rated		Not rated		Not rated	

Table 12b.--Construction Materials--Continued

Map symbol and component name	Pct. of map unit	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
W: Water-----	100	Not rated		Not rated		Not rated	

Table 13.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component name	Pct. of map unit	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
GP:							
Pits, gravel-----	80	Not rated		Not rated		Not rated	
Udipsamments-----	20	Not rated		Not rated		Not rated	
J1A:							
Parnell, depressional-----	90	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.68	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
Colvin-----	5	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10
Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J2A:							
La Prairie-----	90	Somewhat limited Seepage	0.72	Somewhat limited Depth to saturated zone Piping	0.87 0.50	Somewhat limited Slow refill Cutbanks cave Deep to water	0.28 0.10 0.06
Lamoure-----	10	Somewhat limited Seepage	0.54	Very limited Depth to saturated zone Hard to pack	1.00 0.07	Somewhat limited Slow refill Cutbanks cave	0.46 0.10
J3A:							
Arveson-----	80	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.89	Very limited Cutbanks cave	1.00
Marysland-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
Marysland, depressional-----	5	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage Ponding	1.00 1.00 1.00	Very limited Cutbanks cave	1.00
Malachy-----	5	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage	0.87 0.49	Very limited Cutbanks cave Deep to water	1.00 0.06

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J4A:							
Rockwell-----	90	Very limited Seepage	1.00	Very limited Depth to saturated zone Piping	1.00 0.85	Somewhat limited Cutbanks cave	0.10
Arveson-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.89	Very limited Cutbanks cave	1.00
J5A:							
Fossum-----	85	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
Arveson-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.89	Very limited Cutbanks cave	1.00
Fossum, depressional	3	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage Ponding	1.00 1.00 1.00	Very limited Cutbanks cave	1.00
Hecla-----	2	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	0.96 0.87	Very limited Cutbanks cave Deep to water	1.00 0.06
J6A:							
McDonaldsville-----	90	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
Somewhat poorly drained soils-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage Piping	1.00 1.00 0.21	Very limited Cutbanks cave	1.00
J7A:							
Sverdrup-----	85	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Arveson-----	5	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.89	Very limited Cutbanks cave	1.00
Clontarf-----	5	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J7A:							
Egeland-----	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
J7B:							
Sverdrup-----	90	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Clontarf-----	5	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00
Egeland-----	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
J8A:							
Egeland-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.39	Very limited Deep to water	1.00
Clontarf-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00
Sverdrup-----	5	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Arveson-----	3	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.89	Very limited Cutbanks cave	1.00
Hantho-----	2	Somewhat limited Seepage	0.72	Very limited Piping Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
J8B:							
Egeland-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.39	Very limited Deep to water	1.00
Clontarf-----	8	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00
Sverdrup-----	5	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Torning-----	3	Very limited Seepage	1.00	Somewhat limited Seepage	0.94	Very limited Deep to water	1.00
Eckman-----	2	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Egeland, eroded-----	2	Very limited Seepage	1.00	Somewhat limited Seepage	0.39	Very limited Deep to water	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J9A:							
Estelline-----	90	Very limited Seepage	1.00	Very limited Seepage Piping	1.00 1.00	Very limited Deep to water	1.00
Soils that have a thin surface layer	10	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
J10A:							
Sinai-----	90	Not limited		Somewhat limited Hard to pack Depth to saturated zone	0.99 0.87	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.06
Fulda-----	10	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.99	Very limited Slow refill Cutbanks cave	1.00 0.10
J10B:							
Sinai-----	90	Not limited		Somewhat limited Hard to pack Depth to saturated zone	0.99 0.87	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.06
Fulda-----	10	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.99	Very limited Slow refill Cutbanks cave	1.00 0.10
J11A:							
Vallers-----	85	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Parnell, depressional-----	10	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.68	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
Balaton-----	5	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.87 0.34	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.06
J12A:							
Marysland-----	85	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
Arveson-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.89	Very limited Cutbanks cave	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J12A: Marysland, depressionals-----	3	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage Ponding	1.00 1.00 1.00	Very limited Cutbanks cave	1.00
Malachy-----	2	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage	0.87 0.49	Very limited Cutbanks cave Deep to water	1.00 0.06
J13A: Oldham-----	90	Somewhat limited Seepage	0.05	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.61	Somewhat limited Slow refill Cutbanks cave	0.95 0.10
Colvin-----	5	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10
Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J14F: Esmond-----	85	Somewhat limited Seepage Slope	0.95 0.24	Very limited Piping	1.00	Very limited Deep to water	1.00
Emrick-----	10	Somewhat limited Seepage	0.95	Very limited Piping Depth to saturated zone	1.00 0.87	Somewhat limited Cutbanks cave Deep to water Slow refill	0.10 0.06 0.05
Heimdal-----	5	Somewhat limited Seepage Slope	0.95 0.04	Very limited Piping	1.00	Very limited Deep to water	1.00
J15B: Eckman-----	80	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Eckman, eroded-----	5	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Egeland-----	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.39	Very limited Deep to water	1.00
Hantho-----	5	Somewhat limited Seepage	0.72	Very limited Piping Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
Zell-----	5	Somewhat limited Seepage	0.72	Very limited Piping	1.00	Very limited Deep to water	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J16A: Friberg, depressional-----	90	Somewhat limited Seepage	0.95	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.83	Somewhat limited Cutbanks cave Slow refill	0.10 0.05
Kerkhoven-----	10	Somewhat limited Seepage	0.95	Very limited Depth to saturated zone Piping	1.00 0.41	Somewhat limited Cutbanks cave Slow refill	0.10 0.05
J17A: Quam, depressional--	90	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.50	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
Colvin-----	5	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10
Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J18A: Malachy-----	85	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage	0.87 0.49	Very limited Cutbanks cave Deep to water	1.00 0.06
Arveson-----	5	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.89	Very limited Cutbanks cave	1.00
Well drained soils--	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.39	Very limited Cutbanks cave Deep to water	1.00 0.78
Clontarf-----	5	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00
J19A: Hecla-----	80	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	0.96 0.87	Very limited Cutbanks cave Deep to water	1.00 0.06
Clontarf-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J19A:							
Sverdrup-----	5	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Hamar-----	3	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.57	Very limited Cutbanks cave	1.00
Malachy-----	2	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage	0.87 0.49	Very limited Cutbanks cave Deep to water	1.00 0.06
J20A:							
Clontarf-----	80	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00
Hecla-----	10	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	0.96 0.87	Very limited Cutbanks cave Deep to water	1.00 0.06
Arveson-----	5	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.89	Very limited Cutbanks cave	1.00
Well drained soils--	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.39	Very limited Cutbanks cave Deep to water	1.00 0.78
J21A:							
Hamar-----	85	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.57	Very limited Cutbanks cave	1.00
Less sandy soils----	8	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00
Arveson-----	4	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.89	Very limited Cutbanks cave	1.00
Hecla-----	3	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	0.96 0.87	Very limited Cutbanks cave Deep to water	1.00 0.06
J22A:							
Renshaw-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.27	Very limited Deep to water	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
<b>J22A:</b>							
Fordtown-----	10	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	0.52 0.05	Very limited Cutbanks cave Deep to water	1.00 0.60
Arvilla-----	3	Very limited Seepage	1.00	Somewhat limited Seepage	0.98	Very limited Deep to water	1.00
Fordville-----	2	Very limited Seepage	1.00	Somewhat limited Seepage	0.52	Very limited Deep to water	1.00
<b>J23A:</b>							
Lamoure-----	85	Somewhat limited Seepage	0.54	Very limited Depth to saturated zone Hard to pack	1.00 0.07	Somewhat limited Slow refill Cutbanks cave	0.46 0.10
Rauville-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Piping	1.00 0.24	Very limited Cutbanks cave	1.00
La Prairie-----	5	Somewhat limited Seepage	0.72	Somewhat limited Depth to saturated zone Piping	0.87 0.50	Somewhat limited Slow refill Cutbanks cave Deep to water	0.28 0.10 0.06
<b>J24F:</b>							
Buse-----	85	Somewhat limited Seepage Slope	0.70 0.24	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Darnen-----	10	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.80	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Barnes-----	5	Somewhat limited Seepage Slope	0.70 0.04	Somewhat limited Piping	0.39	Very limited Deep to water	1.00
<b>J25A:</b>							
Rauville-----	90	Very limited Seepage	1.00	Very limited Depth to saturated zone Piping	1.00 0.24	Very limited Cutbanks cave	1.00
Lamoure-----	10	Somewhat limited Seepage	0.54	Very limited Depth to saturated zone Hard to pack	1.00 0.07	Somewhat limited Slow refill Cutbanks cave	0.46 0.10
<b>J26B:</b>							
Darnen-----	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.80	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
<b>J26B:</b>							
Hokans-----	5	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.42	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Lakepark-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.21	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
<b>J27A:</b>							
Hantho-----	85	Somewhat limited Seepage	0.72	Very limited Piping Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
Eckman-----	5	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Quam-----	5	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Piping	1.00 0.58	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
Rondell-----	3	Somewhat limited Seepage	0.43	Somewhat limited Depth to saturated zone Piping	0.87 0.24	Somewhat limited Slow refill Cutbanks cave Deep to water	0.57 0.10 0.06
Tara-----	2	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.75	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
<b>J28A:</b>							
Vallers, bouldery---	90	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Parnell, depressional-----	10	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.68	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
<b>J29A:</b>							
Cathro-----	90	Somewhat limited Seepage	0.57	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.98	Somewhat limited Cutbanks cave	0.10
Colvin-----	5	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J29A: Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J30A: Tara-----	90	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.75	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Balaton-----	5	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.87 0.34	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.06
Byrne-----	3	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.43	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Quam-----	2	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Piping	1.00 0.58	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
J31B: Arvilla-----	45	Very limited Seepage	1.00	Somewhat limited Seepage	0.98	Very limited Deep to water	1.00
Sandberg-----	30	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Renshaw-----	10	Very limited Seepage	1.00	Somewhat limited Seepage	0.27	Very limited Deep to water	1.00
Sioux-----	10	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Fordtown-----	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.52	Very limited Cutbanks cave Deep to water	1.00 0.78
J32A: Bigstone-----	80	Somewhat limited Seepage	0.43	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.57 0.10
Urness-----	10	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.30	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Colvin-----	5	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J32A: Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J33D2: Sisseton, eroded----	70	Somewhat limited Seepage Slope	0.95 0.06	Very limited Piping	1.00	Very limited Deep to water	1.00
Heimdal, eroded----	10	Somewhat limited Seepage Slope	0.95 0.02	Very limited Piping	1.00	Very limited Deep to water	1.00
Esmond, eroded----	10	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Heimdal, slightly eroded-----	5	Somewhat limited Seepage Slope	0.95 0.02	Very limited Piping	1.00	Very limited Deep to water	1.00
Emrick-----	5	Somewhat limited Seepage	0.95	Very limited Piping Depth to saturated zone	1.00 0.87	Somewhat limited Cutbanks cave Deep to water Slow refill	0.10 0.06 0.05
J34B: Byrne-----	45	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.56	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Buse-----	35	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Buse, eroded-----	10	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Hokans-----	5	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.42	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Tara-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.75	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J35B: Hokans-----	45	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.42	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Buse-----	30	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Very limited Deep to water	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
<b>J35B:</b>							
Barnes-----	10	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
Buse, eroded-----	10	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Svea-----	5	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.87 0.36	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.06
<b>J36C2:</b>							
Buse, eroded-----	45	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Barnes, eroded-----	20	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
Barnes, slightly eroded-----	10	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
Buse, slightly eroded-----	10	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Darnen-----	10	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.80	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Langhei, eroded-----	5	Somewhat limited Seepage Slope	0.70 0.02	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
<b>J37D2:</b>							
Langhei, eroded-----	60	Somewhat limited Seepage Slope	0.70 0.06	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Barnes, eroded-----	15	Somewhat limited Seepage Slope	0.70 0.02	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
Buse, eroded-----	10	Somewhat limited Seepage Slope	0.70 0.06	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Darnen-----	10	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.80	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Barnes, slightly eroded-----	5	Somewhat limited Seepage Slope	0.70 0.06	Somewhat limited Piping	0.39	Very limited Deep to water	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J38B:							
Zell-----	41	Somewhat limited Seepage	0.72	Very limited Piping	1.00	Very limited Deep to water	1.00
Eckman-----	39	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Zell, eroded-----	10	Somewhat limited Seepage	0.72	Very limited Piping	1.00	Very limited Deep to water	1.00
Egeland-----	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
Hantho-----	5	Somewhat limited Seepage	0.72	Very limited Piping Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
J38C2:							
Zell, eroded-----	45	Somewhat limited Seepage	0.72	Very limited Piping	1.00	Very limited Deep to water	1.00
Eckman, eroded-----	20	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Zell, slightly eroded-----	15	Somewhat limited Seepage	0.72	Very limited Piping	1.00	Very limited Deep to water	1.00
Hantho-----	10	Somewhat limited Seepage	0.72	Very limited Piping Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
Eckman, slightly eroded-----	5	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Egeland-----	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
J39A:							
Udorthents-----	100	Not rated		Not rated		Not rated	
J40A:							
Foxlake-----	85	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.50	Very limited Slow refill Cutbanks cave	1.00 0.10
Audubon-----	5	Not limited		Somewhat limited Depth to saturated zone Hard to pack	0.87 0.50	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.06
Calcareous soils----	5	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.50	Very limited Slow refill Cutbanks cave	1.00 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J40A: Soils in depressions	5	Not limited		Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.50	Very limited Slow refill Cutbanks cave	1.00 0.10
J41A: Urness-----	80	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.30	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Bigstone-----	10	Somewhat limited Seepage	0.43	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.57 0.10
Colvin-----	5	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10
Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J42C: Sandberg-----	60	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Arvilla-----	30	Very limited Seepage	1.00	Somewhat limited Seepage	0.98	Very limited Deep to water	1.00
Everts-----	10	Very limited Seepage	1.00	Somewhat limited Seepage	0.91	Very limited Deep to water	1.00
J43A: Quam, depression--	30	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.78	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Cathro-----	30	Very limited Seepage	1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Somewhat limited Cutbanks cave	0.10
Urness-----	30	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.44	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Colvin-----	5	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J43A:							
Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00  0.32	Somewhat limited Slow refill Cutbanks cave	0.30  0.10
J44B:							
Esmond-----	45	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Heimdal-----	40	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Esmond, eroded-----	10	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Emrick-----	5	Somewhat limited Seepage	0.95	Very limited Piping Depth to saturated zone	1.00  0.87	Somewhat limited Cutbanks cave Deep to water Slow refill	0.10  0.06 0.05
J44C2:							
Esmond, eroded-----	40	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Heimdal, eroded-----	25	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Esmond, slightly eroded-----	15	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Heimdal, slightly eroded-----	10	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00
Emrick-----	5	Somewhat limited Seepage	0.95	Very limited Piping Depth to saturated zone	1.00  0.87	Somewhat limited Cutbanks cave Deep to water Slow refill	0.10  0.06 0.05
Sisseton, eroded-----	5	Somewhat limited Seepage Slope	0.95 0.02	Very limited Piping	1.00	Very limited Deep to water	1.00
J45F:							
Sandberg-----	80	Very limited Seepage Slope	1.00 0.12	Very limited Seepage	1.00	Very limited Deep to water	1.00
Everts-----	10	Very limited Seepage	1.00	Somewhat limited Seepage	0.91	Very limited Deep to water	1.00
Arvilla-----	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.98	Very limited Deep to water	1.00
Sioux-----	5	Very limited Seepage Slope	1.00 0.12	Very limited Seepage	1.00	Very limited Deep to water	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J46B:							
Byrne-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.43	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Hokans-----	7	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.42	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Buse-----	5	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Quam-----	3	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Piping	1.00 0.58	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
J47A:							
Swenoda-----	85	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Piping Seepage	0.87 0.69 0.09	Somewhat limited Slow refill Cutbanks cave Deep to water	0.43 0.10 0.06
Clontarf-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00
Egeland-----	5	Very limited Seepage	1.00	Somewhat limited Seepage	0.39	Very limited Deep to water	1.00
J48A:							
Bigstone-----	40	Somewhat limited Seepage	0.43	Very limited Ponding Depth to saturated zone Piping	1.00 1.00 0.30	Somewhat limited Slow refill Cutbanks cave	0.57 0.10
Parnell-----	40	Somewhat limited Seepage	0.04	Very limited Ponding Depth to saturated zone Hard to pack	1.00 1.00 0.68	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
Colvin-----	10	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10
Vallers-----	10	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
<b>J49A:</b>							
Lakepark-----	50	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.21	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Parnell, depressional-----	35	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.68	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
Emrick-----	8	Somewhat limited Seepage	0.95	Very limited Piping Depth to saturated zone	1.00 0.87	Somewhat limited Cutbanks cave Deep to water Slow refill	0.10 0.06 0.05
Vallers-----	7	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
<b>J50A:</b>							
Balaton-----	45	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.87 0.34	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.06
Tara-----	35	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping	1.00 0.89	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
McIntosh-----	10	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.14	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Well drained soils--	5	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Winger-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.72	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
<b>J51A:</b>							
Bearden-----	60	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10
Quam, depressional--	30	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.47	Somewhat limited Slow refill Cutbanks cave	0.96 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J51A:							
Rondell-----	7	Somewhat limited Seepage	0.43	Somewhat limited Depth to saturated zone Piping	0.87 0.24	Somewhat limited Slow refill Cutbanks cave Deep to water	0.57 0.10 0.06
Winger-----	3	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.72	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J52A:							
Rondell-----	85	Somewhat limited Seepage	0.43	Somewhat limited Depth to saturated zone Piping	0.87 0.24	Somewhat limited Slow refill Cutbanks cave Deep to water	0.57 0.10 0.06
Zell-----	9	Somewhat limited Seepage	0.72	Very limited Piping	1.00	Very limited Deep to water	1.00
Bearden-----	6	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10
J53A:							
Ortonville-----	85	Somewhat limited Seepage	0.95	Very limited Piping Depth to saturated zone	1.00 0.87	Somewhat limited Cutbanks cave Deep to water Slow refill	0.10 0.06 0.05
Well drained soils--	10	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Somewhat limited Deep to water Cutbanks cave Slow refill	0.78 0.10 0.05
Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J54A:							
Marysland, depressionals-----	90	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage Ponding	1.00 1.00 1.00	Very limited Cutbanks cave	1.00
Marysland soils that are not ponded-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
J55A:							
Sedgeville-----	90	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.21	Very limited Cutbanks cave	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J55A: Soils that are frequently flooded	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
J56A: Winger-----	40	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.72	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Balaton-----	30	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.87 0.34	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.06
Parnell, depressional-----	20	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.68	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
Colvin-----	5	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10
Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J57A: Balaton-----	85	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.87 0.34	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.06
Well drained soils--	5	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Tara-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.75	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Vallers-----	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
J58B: Torning-----	45	Very limited Seepage	1.00	Somewhat limited Seepage	0.94	Very limited Deep to water	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J58B:							
Egeland-----	40	Very limited Seepage	1.00	Somewhat limited Seepage	0.57	Very limited Deep to water	1.00
Clontarf-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.93	Very limited Cutbanks cave	1.00
Sverdrup-----	5	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
J59A:							
Urness, sandy substratum-----	90	Very limited Seepage	1.00	Very limited Ponding Depth to saturated zone Seepage Piping	1.00 1.00 1.00 0.95	Very limited Cutbanks cave	1.00
Marysland-----	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
J60B:							
Hattie-----	46	Not limited		Somewhat limited Depth to saturated zone Hard to pack	0.87 0.76	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.06
Audubon-----	44	Not limited		Somewhat limited Depth to saturated zone Hard to pack	0.87 0.50	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.06
Foxlake-----	10	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.50	Very limited Slow refill Cutbanks cave	1.00 0.10
J60C:							
Hattie-----	60	Not limited		Somewhat limited Depth to saturated zone Hard to pack	0.87 0.76	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.06
Audubon-----	30	Not limited		Somewhat limited Depth to saturated zone Hard to pack	0.87 0.50	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.06
Foxlake-----	10	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.50	Very limited Slow refill Cutbanks cave	1.00 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J61A:							
Svea, bouldery-----	90	Somewhat limited Seepage	0.72	Somewhat limited Depth to saturated zone Piping	0.87 0.35	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.06
Vallers, bouldery---	5	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Parnell, depressional-----	5	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.68	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
J62C:							
Buse, very bouldery	45	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Barnes, very bouldery-----	25	Somewhat limited Seepage	0.72	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
Hokans-----	15	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.42	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
Svea, bouldery-----	10	Somewhat limited Seepage	0.72	Somewhat limited Depth to saturated zone Piping	0.87 0.35	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.06
Darnen-----	5	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.80	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10
J62F:							
Buse, very bouldery	50	Somewhat limited Seepage Slope	0.70 0.24	Somewhat limited Piping	0.32	Very limited Deep to water	1.00
Barnes, very bouldery-----	40	Somewhat limited Seepage Slope	0.70 0.24	Somewhat limited Piping	0.40	Very limited Deep to water	1.00
Darnen-----	10	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.80	Somewhat limited Deep to water Slow refill Cutbanks cave	0.78 0.30 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
J63A: Ortonville-----	45	Somewhat limited Seepage	0.95	Very limited Piping Depth to saturated zone	1.00 0.87	Somewhat limited Cutbanks cave Deep to water Slow refill	0.10 0.06 0.05
Vallers-----	35	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.32	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Parnell, depressional-----	20	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.68	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
J64A: Quam-----	90	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Piping	1.00 0.58	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
Colvin-----	5	Somewhat limited Seepage	0.53	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.47 0.10
Quam, depressional--	5	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.50	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
J65A: Shakopee-----	90	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Cutbanks cave	1.00
Soils in depressions	10	Very limited Seepage	1.00	Very limited Depth to saturated zone Ponding Seepage Piping	1.00 1.00 1.00 0.02	Very limited Cutbanks cave	1.00
J66A: Emrick-----	85	Somewhat limited Seepage	0.95	Very limited Piping Depth to saturated zone	1.00 0.87	Somewhat limited Cutbanks cave Deep to water Slow refill	0.10 0.06 0.05
Lakepark-----	10	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.21	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Heimdal-----	5	Somewhat limited Seepage	0.95	Very limited Piping	1.00	Very limited Deep to water	1.00

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
<b>J67A:</b>							
Fordtown-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.52	Very limited Cutbanks cave Deep to water	1.00 0.78
Renshaw-----	8	Very limited Seepage	1.00	Somewhat limited Seepage	0.27	Very limited Deep to water	1.00
Spottswood-----	7	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.52	Very limited Cutbanks cave	1.00
<b>J68A:</b>							
Kerkhoven-----	55	Somewhat limited Seepage	0.95	Very limited Depth to saturated zone Piping	1.00 0.41	Somewhat limited Cutbanks cave Slow refill	0.10 0.05
Friberg, depression-----	35	Somewhat limited Seepage	0.95	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.83	Somewhat limited Cutbanks cave Slow refill	0.10 0.05
Emrick-----	10	Somewhat limited Seepage	0.95	Very limited Piping Depth to saturated zone	1.00 0.87	Somewhat limited Cutbanks cave Deep to water Slow refill	0.10 0.06 0.05
<b>L33B:</b>							
Kandiyohi-----	85	Somewhat limited Seepage	0.01	Very limited Depth to saturated zone Hard to pack	1.00 0.78	Somewhat limited Slow refill Cutbanks cave	0.99 0.10
Cosmos-----	10	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.61	Very limited Slow refill Cutbanks cave	1.00 0.10
Okoboji-----	5	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.52	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
<b>L34A:</b>							
Cosmos-----	85	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.61	Very limited Slow refill Cutbanks cave	1.00 0.10
Kandiyohi-----	10	Somewhat limited Seepage	0.01	Very limited Depth to saturated zone Hard to pack	1.00 0.78	Somewhat limited Slow refill Cutbanks cave	0.99 0.10

Table 13.--Water Management--Continued

Map symbol and component name	Pct. of map unit	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
L34A: Okoboji-----	5	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Hard to pack	1.00 1.00 0.52	Somewhat limited Slow refill Cutbanks cave	0.96 0.10
M-W: Water, miscellaneous	100	Not rated		Not rated		Not rated	
W: Water-----	100	Not rated		Not rated		Not rated	

# Soil Properties

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Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-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 shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major horizons of each soil. Pertinent soil and water features also are given.

## Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major horizons of each soil. Most soils have horizons of contrasting properties within the upper 5 or 6 feet.

*Depth* to the upper and lower boundaries of each horizon 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 as much as 15 percent, an

appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

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

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-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, SP-SM.

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 grain-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 oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

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

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

## Physical and Chemical Properties

Tables 15 and 16 show estimates of some characteristics and features that affect soil behavior. These estimates are given for the major horizons 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 horizon is indicated.

In table 15, *clay* as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. The estimated clay content of each major soil horizon 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 greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence linear extensibility, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $\frac{1}{3}$ -bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In table 15, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, 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. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Permeability* refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity ( $K_{sat}$ ). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil horizon. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. 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* percent is the linear expression of the volume difference of natural soil fabric at  $\frac{1}{3}$ -bar or  $\frac{1}{10}$ -bar water content and oven dryness. The volume change is reported as percent change for the whole soil. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

Linear extensibility of 3 percent or more can cause damage to buildings, roads, and other structures. Special design is often needed.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In table 15, 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 or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

*Erosion factors* are shown in table 15 as the K factor ( $K_w$  and  $K_f$ ) 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  $K_w$*  indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

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

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

*Wind erodibility groups* are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. Descriptions of these groups are available in the National Soil Survey Handbook (USDA, 2003).

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

In table 16, *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.

*Soil reaction* is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

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

*Gypsum* is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

## 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 17 gives estimates of soil moisture for each component of a map unit at various depths for every month of the year. The depths displayed are representative values that are indicative of conditions that occur most of the time. *Dry* indicates a moisture condition under which most plants (especially crops) cannot extract water for growth. *Moist* indicates a moisture condition under which soil water is most readily available for plant growth. *Wet* indicates a condition under which water will stand in an unlined hole or at least a condition under which the soil is too wet for the growth of most agricultural species. A moisture status of 4.0-6.7 (wet) indicates that most of the time the component is saturated at some depth between 4.0 feet and 6.7 feet during the month designated. In some years the soil may be saturated at a depth of less than 4.0 feet or more than 6.7 feet;

however, field observations indicate that the soil will be saturated between these depths in most years. In the summer, the soil may show the effects of drying plus intermittent rains that result in a moist or wet layer over a dry layer that gets moist or wet again.

In table 17, *hydrologic soil groups* are groups of soils that, when saturated, have the same runoff potential under similar storm and ground cover conditions. The soil properties that affect the runoff potential are those that influence the minimum rate of infiltration in a bare soil after prolonged wetting and when the soil is not frozen. These properties include the depth to a zone in which the soil moisture status is wet, the infiltration rate, permeability after prolonged wetting, and the depth to a very slowly permeable horizon or horizons. The influences of ground cover and slope are treated independently and are not taken into account in hydrologic soil groups.

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

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of very deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have a moderately fine to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a horizon or horizons that impede the downward movement of water or soils that have a moderately fine or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clayey soils that have a high linear extensibility; soils that have a zone, high in the profile, in which the soil moisture status is wet on a permanent basis; soils that have a claypan or clay horizon or horizons at or near the surface; and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D,

B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

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

Table 18 gives estimates of the frequency and duration of flooding. Flooding frequency is the annual probability of a flood event expressed as a class. *None* indicates no reasonable possibility of flooding (the chance of flooding is nearly 0 percent in any year, or flooding is likely less than once in 500 years). *Very rare* indicates that flooding is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year, or flooding is likely less than once in 100 years but more than once in 500 years). *Rare* indicates that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year, or flooding is likely 1 to 5 times in 100 years). *Occasional* indicates that flooding occurs infrequently under usual weather conditions (the chance of flooding is 5 to 50 percent in any year, or flooding is likely 5 to 50 times in 100 years). *Frequent* indicates that flooding is likely to occur often under usual weather conditions (the chance of flooding is more than 50 percent in any year, or flooding is likely more than 50 times in 100 years; but the chance of flooding is less than 50 percent in all months in any year). *Very frequent* indicates that flooding is likely to occur very often under usual weather conditions (the chance of flooding is more than 50 percent in all months of any year).

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

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and level of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering

surveys that delineate flood-prone areas at specific flood frequency levels.

*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 gives estimates of the frequency, duration, and depth of ponding. The depths displayed are representative values that are indicative of conditions that occur most of the time.

Ponding frequency is the number of times ponding occurs over a period of time. *None* indicates no reasonable possibility of ponding (the chance of ponding is nearly 0 percent in any year). *Rare* indicates that ponding is unlikely but possible under unusual weather conditions (the chance of ponding ranges from nearly 0 percent to 5 percent in any year, or ponding is likely 0 to 5 times in 100 years).

*Occasional* indicates that ponding is expected infrequently under usual weather conditions (the chance of ponding ranges from 5 to 50 percent in any one year, or ponding is likely 5 to 50 times in 100 years). *Frequent* indicates that ponding is likely to occur under usual weather conditions (the chance of ponding is more than 50 percent in any year, or ponding is likely more than 50 times in 100 years).

Ponding duration is the average length of time of the ponding occurrence. It is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 to 30 days), and *very long* (more than 30 days).

## Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

*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 a zone in which the soil moisture status is wet 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 saturated zone high in the profile during the 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.

Table 14.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated)

Map symbol and component name	Pct. of map unit	Depth  In	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
GP: Pits, gravel----	80	---	---	---	---	---	---	---	---	---	---	---	---
Udipsamments----	20	---	---	---	---	---	---	---	---	---	---	---	---
J1A: Parnell, depressional---	90	0-22	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		22-55	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		55-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50
Colvin-----	5	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		10-25	Silt loam, silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
		25-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
Vallars-----	5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J2A: La Prairie-----	90	0-9	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-95	70-80	25-40	5-15
		9-38	Loam, silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	50-90	25-50	5-25
		38-50	Loam, silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	50-90	25-50	5-25
		50-60	Loam, silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	70-90	25-50	5-25

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
						Pct	Pct					Pct	
<b>J2A:</b>													
Lamoure-----	10	0-27	Silty clay loam	CL, MH, CH, ML	A-7	0	0	100	100	95-100	85-100	40-70	15-35
		27-34	Silty clay loam, silt loam	CL, MH, CH, ML	A-7	0	0	100	100	90-100	60-100	40-70	15-35
		34-60	Silty clay loam, silt loam, loam	CL, ML	A-6, A-7	0	0	95-100	95-100	90-100	60-100	30-70	10-35
<b>J3A:</b>													
Arveson-----	80	0-10	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		10-22	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		22-35	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-4	0	0	100	95-100	60-85	35-50	0-20	NP-5
		35-80	Loamy sand, sand	SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	95-100	50-80	5-45	0-20	NP-5
<b>Marysland-----</b>													
	10	0-9	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		9-12	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		12-27	Loam, clay loam, sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	45-80	20-40	10-20
		27-80	Sand, stratified gravelly coarse sand to fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	70-95	50-90	35-70	5-20	---	NP
<b>Marysland, depressional---</b>													
	5	0-19	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		19-23	Loam, sandy loam, sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	45-80	20-40	10-20
		23-80	Sand, stratified gravelly coarse sand to fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	70-95	50-90	35-70	5-20	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J3A: Malachy-----	5	0-17	Sandy loam	SM	A-4	0	0	100	80-100	60-70	35-50	15-28	NP-10
		17-28	Loam, fine sandy loam, sandy loam	CL, ML, SC, SM	A-4	0	0	100	80-100	60-95	35-75	15-28	NP-10
		28-80	Gravelly sand, loamy sand, sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	75-100	30-80	5-35	---	NP
J4A: Rockwell-----	90	0-9	Loam	ML	A-4	0	0	100	95-100	85-95	50-75	20-40	NP-10
		9-16	Fine sandy loam, sandy loam, loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	95-100	60-85	35-55	15-25	1-7
		16-25	Fine sandy loam, sandy loam, loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	95-100	60-85	35-55	15-25	1-7
		25-45	Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
		45-80	Silt loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0-1	95-100	90-100	70-90	40-85	15-40	5-20
Arveson-----	10	0-10	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		10-22	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		22-35	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-4	0	0	100	95-100	60-85	35-50	0-20	NP-5
		35-80	Loamy sand, sand	SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	95-100	50-80	5-45	0-20	NP-5
J5A: Fossum-----	85	0-13	Sandy loam	SM, SC-SM, SC	A-4	0	0	100	100	60-85	35-50	15-20	NP-10
		13-21	Loamy sand, sand, fine sand	SM	A-3, A-2	0	0	100	100	60-80	5-30	0-0	NP
		21-80	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	95-100	95-100	60-100	5-20	0-0	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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											
<b>J5A:</b>													
Arveson-----	10	0-10	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		10-22	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		22-35	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-4	0	0	100	95-100	60-85	35-50	0-20	NP-5
		35-80	Loamy sand, sand	SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	95-100	50-80	5-45	0-20	NP-5
<b>Fossum, depressional---</b>													
	3	0-8	Sandy loam	SM, SC-SM, SC	A-4	0	0	100	100	60-85	35-50	15-20	NP-10
		8-14	Loamy sand, sand, fine sand	SM	A-3, A-2	0	0	100	100	60-80	5-30	0-0	NP
		14-80	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	95-100	95-100	60-100	5-20	0-0	NP
<b>Hecla-----</b>													
	2	0-9	Loamy fine sand	SC-SM, SM, SP-SM	A-2	0	0	100	95-100	85-100	12-35	15-30	NP-7
		9-80	Loamy sand, fine sand, loamy fine sand	SC-SM, SM, SP-SM	A-2	0	0	100	95-100	85-100	10-35	15-30	NP-7
<b>J6A:</b>													
McDonaldsville--	90	0-17	Silty clay	CH, CL	A-7	0	0	100	95-100	90-100	75-95	45-75	20-45
		17-36	Clay, silty clay, clay loam	CL, CH	A-7	0	0	100	95-100	90-100	70-95	40-75	20-45
		36-80	Loamy fine sand, loamy sand, sand	SP, SM, SP-SM	A-2	0	0-5	85-100	80-100	50-75	4-35	0-20	NP
<b>Somewhat poorly drained soils--</b>													
	10	0-32	Silty clay	CH, CL	A-7	0	0	100	95-100	90-100	75-95	45-75	20-45
		32-46	Clay, silty clay, clay loam	CL, CH	A-7	0	0	100	95-100	90-100	70-95	40-75	20-45
		46-80	Loamy fine sand, loamy sand, sand	SP, SM, SP-SM	A-2	0	0-5	85-100	80-100	50-75	4-35	0-20	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J7A: Sverdrup-----	85	0-12	Sandy loam	SM	A-4	0	0	100	95-100	60-70	35-50	---	NP
		12-26	Loam, sandy loam, loamy sand	ML, SM	A-2, A-4	0	0	100	95-100	50-75	30-70	15-30	NP-5
		26-80	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	100	95-100	50-90	2-10	---	NP
Arveson-----	5	0-10	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		10-22	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		22-35	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-4	0	0	100	95-100	60-85	35-50	0-20	NP-5
		35-80	Loamy sand, sand	SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	95-100	50-80	5-45	0-20	NP-5
Clontarf-----	5	0-15	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
		15-25	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		25-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5
Egeland-----	5	0-8	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		8-30	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		30-35	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		35-48	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		48-80	Loamy sand, loamy fine sand, loamy very fine sand	SP-SM, SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J7B: Sverdrup-----	90	0-12	Sandy loam	SM	A-4	0	0	100	95-100	60-70	35-50	---	NP
		12-26	Loam, sandy loam, loamy sand	ML, SM	A-2, A-4	0	0	100	95-100	50-75	30-70	15-30	NP-5
		26-80	Sand, fine sand	SP, SP-SM	A-3, A-2	0	0	100	95-100	50-90	2-10	---	NP
Clontarf-----	5	0-15	Sandy loam	SM	A-4, A-2	0	0	100	95-100	60-85	25-50	15-30	NP-10
		15-25	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		25-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5
Egeland-----	5	0-8	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		8-30	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		30-35	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		35-48	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		48-80	Loamy sand, loamy fine sand, loamy very fine sand	SP-SM, SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
J8A: Egeland-----	80	0-15	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		15-40	Sandy loam, fine sandy loam	SC-SM, SM	A-4, A-2	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		40-60	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		60-80	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth  In	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
J8A:													
Clontarf-----	10	0-15	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
		15-25	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		25-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5
Sverdrup-----	5	0-12	Sandy loam	SM	A-4	0	0	100	95-100	60-70	35-50	---	NP
		12-26	Loam, sandy loam, loamy sand	ML, SM	A-2, A-4	0	0	100	95-100	50-75	30-70	15-30	NP-5
		26-80	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	100	95-100	50-90	2-10	---	NP
Arveson-----	3	0-10	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		10-22	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		22-35	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-4	0	0	100	95-100	60-85	35-50	0-20	NP-5
		35-80	Loamy sand, sand	SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	95-100	50-80	5-45	0-20	NP-5
Hantho-----	2	0-12	Silt loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	85-100	21-36	4-10
		12-24	Silt loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		24-65	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		65-80	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
J8B:													
Egeland-----	80	In											
		0-9	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		9-26	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		26-39	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		39-80	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
Clontarf-----	8	0-15	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
		15-25	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		25-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5
Sverdrup-----	5	0-12	Sandy loam	SM	A-4	0	0	100	95-100	60-70	35-50	---	NP
		12-26	Loam, sandy loam, loamy sand	ML, SM	A-2, A-4	0	0	100	95-100	50-75	30-70	15-30	NP-5
		26-80	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	100	95-100	50-90	2-10	---	NP
Torning-----	3	0-8	Fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-95	30-55	0-20	1-5
		8-30	Fine sandy loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-95	30-55	0-20	1-5
		30-80	Fine sand, very fine sandy loam, loamy very fine sand	SM	A-4	0	0	100	100	70-100	10-45	0-20	NP-4

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J8B: Eckman-----	2	0-13	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-40	NP-10
		13-22	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	95-100	95-100	90-100	80-100	20-40	NP-10
		22-30	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
		30-80	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
Egeland, eroded	2	0-7	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		7-20	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		20-39	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		39-80	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
J9A: Estelline-----	90	0-6	Silt loam	CL, ML	A-4, A-6, A-7	0	0	100	100	95-100	80-100	30-45	5-20
		6-27	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-50	11-25
		27-37	Silt loam, loam, silty clay loam	CL, ML	A-4, A-6	0	0	100	100	80-100	70-100	30-40	5-15
		37-60	Gravelly sand, loamy sand, sand	SM, SP-SM, SW-SM	A-1	0	0-5	70-100	40-85	10-50	5-25	15-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J9A: Soils that have a thin surface layer-----	10	0-10	Silt loam	CL, ML	A-4, A-6, A-7	0	0	100	100	95-100	80-100	30-45	5-20
		10-15	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-50	11-25
		15-26	Silt loam, loam, silty clay loam	CL, ML	A-4, A-6	0	0	100	100	80-100	70-100	30-40	5-15
		26-80	Gravelly sand, loamy sand, sand	SM, SP-SM, SW-SM	A-1	0	0-5	70-100	40-85	10-50	5-25	15-25	NP-5
J10A: Sinai-----	90	0-12	Silty clay	CH	A-7	0	0	100	100	95-100	90-100	56-76	33-49
		12-23	Silty clay, silty clay loam, clay	CH	A-7	0	0	100	100	95-100	90-100	51-76	29-49
		23-42	Silty clay, silty clay loam, clay	CH	A-7	0	0	100	100	95-100	90-100	51-76	29-49
		42-60	Silty clay, stratified silty clay loam to silty clay	CH, CL	A-7	0	0	100	100	95-100	80-95	45-70	25-50
Fulda-----	10	0-13	Silty clay	CH	A-7	0	0	100	100	95-100	90-100	56-76	33-49
		13-33	Silty clay, silty clay loam, clay	CH	A-7	0	0	100	100	95-100	90-100	51-76	29-49
		33-40	Silty clay, silty clay loam, clay	CH	A-7	0	0	100	100	95-100	90-100	51-76	29-49
		40-60	Silty clay, stratified silty clay loam to silty clay	CH, CL	A-7	0	0	100	100	95-100	80-95	45-70	25-50

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J10B: Sinai-----	90	0-12	Silty clay	CH	A-7	0	0	100	100	95-100	90-100	56-76	33-49
		12-23	Silty clay, silty clay loam, clay	CH	A-7	0	0	100	100	95-100	90-100	51-76	29-49
		23-42	Silty clay, silty clay loam, clay	CH	A-7	0	0	100	100	95-100	90-100	51-76	29-49
		42-60	Silty clay, stratified silty clay loam to silty clay	CH, CL	A-7	0	0	100	100	95-100	80-95	45-70	25-50
Fulda-----	10	0-13	Silty clay	CH	A-7	0	0	100	100	95-100	90-100	56-76	33-49
		13-33	Silty clay, silty clay loam, clay	CH	A-7	0	0	100	100	95-100	90-100	51-76	29-49
		33-40	Silty clay, silty clay loam, clay	CH	A-7	0	0	100	100	95-100	90-100	51-76	29-49
		40-60	Silty clay, stratified silty clay loam to silty clay	CH, CL	A-7	0	0	100	100	95-100	80-95	45-70	25-50
J11A: Vallars-----	85	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Parnell, depressional---	10	0-22	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		22-55	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		55-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50
Balaton-----	5	0-13	Loam	CL	A-6	0	0-5	95-100	90-95	75-85	60-80	32-36	12-15
		13-31	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		31-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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											
J12A: Marysland-----	85	0-9	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		9-12	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		12-27	Loam, clay loam, sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	45-80	20-40	10-20
		27-80	Sand, stratified gravelly coarse sand to fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	70-95	50-90	35-70	5-20	---	NP
Arveson-----	10	0-10	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		10-22	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		22-35	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-4	0	0	100	95-100	60-85	35-50	0-20	NP-5
		35-80	Loamy sand, sand	SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	95-100	50-80	5-45	0-20	NP-5
Marysland, depression---	3	0-19	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		19-23	Loam, sandy loam, sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	45-80	20-40	10-20
		23-80	Sand, stratified gravelly coarse sand to fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	70-95	50-90	35-70	5-20	0-14	NP
Malachy-----	2	0-17	Sandy loam	SM	A-4	0	0	100	80-100	60-70	35-50	15-28	NP-10
		17-28	Loam, fine sandy loam, sandy loam	CL, ML, SC, SM	A-4	0	0	100	80-100	60-95	35-75	15-28	NP-10
		28-80	Gravelly sand, loamy sand, sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	75-100	30-80	5-35	---	NP
J13A: Oldham-----	90	0-28	Silty clay loam	CH, CL, MH, ML	A-7	0	0	100	95-100	90-100	85-100	40-60	15-25
		28-80	Silty clay loam, silt loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	95-100	85-100	70-100	25-45	5-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J13A:													
Colvin-----	5	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		10-25	Silt loam, silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
		25-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
Vallers-----	5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J14F:													
Esmond-----	85	0-8	Loam	ML	A-4	0	0-1	95-100	95-100	85-100	60-90	20-40	NP-10
		8-27	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		27-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Emrick-----	10	0-15	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-100	60-90	0-40	NP-10
		15-25	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-95	55-75	0-40	NP-10
		25-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
J14F:													
Heimdal-----	5	In											
		0-8	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-1	95-100	85-95	55-85	50-70	20-35	3-15
		8-12	Loam, fine sandy loam, sandy loam	CL, ML, SC, SM, CL-ML	A-4, A-6	0-1	0-1	95-100	85-95	50-80	35-65	15-30	3-15
		12-40	Stratified sandy loam to loam to silt loam	CL, SM, CL-ML	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		40-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
J15B:													
Eckman-----	80	0-13	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-40	NP-10
		13-22	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	95-100	95-100	90-100	80-100	20-40	NP-10
		22-30	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
		30-80	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
Eckman, eroded--													
	5	0-13	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-40	NP-10
		13-22	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	95-100	95-100	90-100	80-100	20-40	NP-10
		22-30	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
		30-80	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J15B: Egeland-----	5	0-9	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		9-26	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		26-39	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		39-80	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
Hantho-----	5	0-12	Silt loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	85-100	21-36	4-10
		12-24	Silt loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		24-65	Silt loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		65-80	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
Zell-----	5	0-10	Silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	80-100	30-40	5-15
		10-43	Silt loam, very fine sandy loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	70-100	25-40	5-15
		43-80	Silt loam, very fine sandy loam, loam	ML, CL-ML	A-4	0	0	100	95-100	85-100	60-100	15-25	NP-7
J16A: Friberg, depressional---	90	0-23	Silt loam	CL	A-4, A-6	0-1	0-2	98-100	95-98	85-98	60-85	21-38	8-18
		23-47	Clay loam, silty clay loam	CL	A-4, A-6	0-1	0-5	95-100	90-98	70-95	50-80	28-43	9-21
		47-60	Sandy loam, clay loam, loam	CL	A-6	0	0-5	95-100	90-100	75-85	55-75	30-40	10-20
		60-80	Loam, fine sandy loam, sandy loam	SM, CL-ML, CL	A-4, A-6	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
J16A:													
Kerkhoven-----	10	In											
		0-10	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	65-90	20-40	2-15
		10-35	Clay loam, loam, silt loam	CL	A-6	0	0	100	95-100	90-100	65-90	30-40	10-20
		35-53	Clay loam, loam	CL	A-6, A-7	0	0-5	95-100	95-100	85-100	65-90	30-45	15-30
53-63	Sandy loam, clay loam, loam	CL	A-6	0	0-5	95-100	90-100	75-85	55-75	30-40	10-20		
												63-80	Loam, sandy loam, fine sandy loam
J17A:													
Quam, depressional---	90	0-10	Silty clay loam	CL	A-7	0	0	100	100	90-100	85-95	40-50	15-25
		10-45	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		45-80	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
Colvin-----													
5	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30	
	10-25	Silt loam, silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30	
	25-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30	
Vallers-----													
5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20	
	14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20	
	38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20	
J18A:													
Malachy-----	85	0-17	Sandy loam	SM	A-4	0	0	100	80-100	60-70	35-50	15-28	NP-10
		17-28	Loam, fine sandy loam, sandy loam	CL, ML, SC, SM	A-4	0	0	100	80-100	60-95	35-75	15-28	NP-10
		28-80	Gravelly sand, loamy sand, sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	75-100	30-80	5-35	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J18A:													
Arveson-----	5	0-10	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		10-22	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		22-35	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-4	0	0	100	95-100	60-85	35-50	0-20	NP-5
		35-80	Loamy sand, sand	SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	95-100	50-80	5-45	0-20	NP-5
Well drained soils-----	5	0-14	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		14-28	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		28-80	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
Clontarf-----	5	0-15	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
		15-25	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		25-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5
J19A:													
Hecla-----	80	0-9	Loamy fine sand	SC-SM, SM, SP-SM	A-2	0	0	100	95-100	85-100	12-35	15-30	NP-7
		9-80	Loamy sand, fine sand, loamy fine sand	SC-SM, SM, SP-SM	A-2	0	0	100	95-100	85-100	10-35	15-30	NP-7
Clontarf-----	10	0-15	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
		15-25	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		25-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J19A: Sverdrup-----	5	0-12	Sandy loam	SM	A-4	0	0	100	95-100	60-70	35-50	---	NP
		12-26	Loam, sandy loam, loamy sand	ML, SM	A-2, A-4	0	0	100	95-100	50-75	30-70	15-30	NP-5
		26-80	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	100	95-100	50-90	2-10	---	NP
Hamar-----	3	0-20	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	100	85-100	15-40	0-25	NP-5
		20-80	Fine sand, loamy sand, loamy fine sand	SC-SM, SM, SP-SM	A-2	0	0	100	100	70-100	10-35	0-25	NP-5
Malachy-----	2	0-17	Sandy loam	SM	A-4	0	0	100	80-100	60-70	35-50	15-28	NP-10
		17-28	Loam, fine sandy loam, sandy loam	CL, ML, SC, SM	A-4	0	0	100	80-100	60-95	35-75	15-28	NP-10
		28-80	Gravelly sand, loamy sand, sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	75-100	30-80	5-35	---	NP
J20A: Clontarf-----	80	0-15	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
		15-25	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		25-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5
Hecla-----	10	0-9	Loamy fine sand	SC-SM, SM, SP-SM	A-2	0	0	100	95-100	85-100	12-35	15-30	NP-7
		9-80	Loamy sand, fine sand, loamy fine sand	SC-SM, SM, SP-SM	A-2	0	0	100	95-100	85-100	10-35	15-30	NP-7
Arveson-----	5	0-10	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		10-22	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		22-35	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-4	0	0	100	95-100	60-85	35-50	0-20	NP-5
		35-80	Loamy sand, sand	SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	95-100	50-80	5-45	0-20	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J20A: Well drained soils-----	5	0-14	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		14-28	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		28-80	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
J21A: Hamar-----	85	0-20	Loamy fine sand	SC-SM, SM	A-2, A-4	0	0	100	100	85-100	15-40	0-25	NP-5
		20-80	Fine sand, loamy sand, loamy fine sand	SC-SM, SM, SP-SM	A-2	0	0	100	100	70-100	10-35	0-25	NP-5
Less sandy soils	8	0-18	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
		18-27	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		27-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5
Arveson-----	4	0-10	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		10-22	Sandy loam	SM	A-4, A-2	0	0-1	100	95-100	55-85	30-50	0-30	NP-7
		22-35	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-4	0	0	100	95-100	60-85	35-50	0-20	NP-5
		35-80	Loamy sand, sand	SC-SM, SM, SP-SM	A-2, A-3, A-4	0	0	100	95-100	50-80	5-45	0-20	NP-5
Hecla-----	3	0-9	Loamy fine sand	SC-SM, SM, SP-SM	A-2	0	0	100	95-100	85-100	12-35	15-30	NP-7
		9-80	Loamy sand, fine sand, loamy fine sand	SP-SM, SC-SM, SM	A-2	0	0	100	95-100	85-100	10-35	15-30	NP-7

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J22A: Renshaw-----	85	0-7	Loam	CL, ML	A-4, A-6	0	0-5	95-100	90-100	70-100	50-75	30-40	5-15
		7-15	Loam, sandy clay loam, gravelly loam	CL, ML, SC, SC-SM	A-4, A-6	0	0-5	95-100	55-100	45-90	35-70	20-40	3-15
		15-20	Gravelly loamy sand, very gravelly loamy sand, gravelly sand	GW-GM, SM, SW, SW-SM	A-1, A-2	0	0-5	45-95	30-80	10-60	0-15	0-25	NP-5
		20-60	Gravelly loamy sand, very gravelly loamy sand, gravelly sand	GW-GM, SM, SW, SW-SM	A-1, A-2	0	0-5	45-95	30-80	10-60	0-15	0-25	NP-5
Fordtown-----	10	0-30	Loam	ML, CL	A-6, A-4	0	0	95-100	90-100	45-100	45-90	30-45	5-20
		30-36	Clay loam, loam, silt loam	CL	A-4	0	0	95-100	90-100	45-100	45-100	28-34	9-14
		36-80	Sand, gravelly loamy sand, very gravelly sand	SW, SM, SW-SM	A-1, A-3, A-2-4	0	0	65-85	35-80	0-80	0-35	15-21	NP-4
Arvilla-----	3	0-9	Sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	95-100	90-100	50-80	20-45	15-30	NP-15
		9-14	Sandy loam, loam, coarse sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	90-100	85-100	50-80	20-45	15-40	NP-15
		14-48	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP
		48-80	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP
Fordville-----	2	0-6	Loam	ML, CL	A-6, A-4	0	0	95-100	90-100	45-100	45-90	30-45	5-20
		6-24	Clay loam, loam, silt loam	CL	A-4	0	0	95-100	90-100	45-100	45-100	28-34	9-14
		24-80	Sand, gravelly loamy sand, very gravelly sand	SW, SM, SW-SM	A-1, A-3, A-2-4	0	0	65-85	35-80	0-80	0-35	15-21	NP-4

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J23A: Lamoure-----	85	0-27	Silty clay loam	CL, MH, CH, ML	A-7	0	0	100	100	95-100	85-100	40-70	15-35
		27-34	Silty clay loam, silt loam	CL, MH, CH, ML	A-7	0	0	100	100	90-100	60-100	40-70	15-35
		34-60	Silty clay loam, silt loam, loam	CL, ML	A-6, A-7	0	0	95-100	95-100	90-100	60-100	30-70	10-35
Rauville-----	10	0-27	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	90-100	80-100	35-60	15-28
		27-45	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	90-100	80-100	35-60	15-28
		45-60	Stratified gravelly sand to clay loam	ML, SC, SM, CL	A-2, A-4	0	0	80-100	65-95	50-85	15-70	15-30	NP-10
La Prairie-----	5	0-9	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-95	70-80	25-40	5-15
		9-38	Loam, silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	50-90	25-50	5-25
		38-50	Loam, silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	50-90	25-50	5-25
		50-60	Loam, silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	70-90	25-50	5-25
J24F: Buse-----	85	0-8	Loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		8-37	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		37-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Darnen-----	10	0-24	Loam	CL, CL-ML, ML, OL	A-4	0	0	100	100	85-100	60-90	20-35	2-10
		24-34	Loam, clay loam	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	85-100	60-90	20-45	5-25
		34-80	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	90-100	90-100	80-95	60-85	20-45	5-25
Barnes-----	5	0-14	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		14-18	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		18-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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		
J25A: Rauville-----	90	0-27	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	90-100	80-100	35-60	15-28
		27-45	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	90-100	80-100	35-60	15-28
		45-60	Stratified gravelly sand to clay loam	ML, SC, SM, CL	A-2, A-4	0	0	80-100	65-95	50-85	15-70	15-30	NP-10
Lamoure-----	10	0-27	Silty clay loam	CL, MH, CH, ML	A-7	0	0	100	100	95-100	85-100	40-70	15-35
		27-34	Silty clay loam, silt loam	CL, MH, CH, ML	A-7	0	0	100	100	90-100	60-100	40-70	15-35
		34-60	Silty clay loam, silt loam, loam	CL, ML	A-6, A-7	0	0	95-100	95-100	90-100	60-100	30-70	10-35
J26B: Darnen-----	90	0-24	Loam	CL, CL-ML, ML, OL	A-4	0	0	100	100	85-100	60-90	20-35	2-10
		24-34	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	60-90	20-45	5-25
		34-80	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	90-100	90-100	80-95	60-85	20-45	5-25
Hokans-----	5	0-15	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		15-22	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Lakepark-----	5	0-8	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	65-90	20-40	2-15
		8-27	Clay loam, loam, silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	65-90	30-40	7-20
		27-41	Silty clay loam, clay loam, loam	CL	A-6, A-7	0	0-5	95-100	95-100	85-100	65-90	30-45	15-30
		41-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth  In	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
J27A:													
Hantho-----	85	0-12	Silt loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	85-100	21-36	4-10
		12-24	Silt loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		24-65	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		65-80	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
Eckman-----	5	0-13	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-40	NP-10
		13-22	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	95-100	95-100	90-100	80-100	20-40	NP-10
		22-30	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
		30-80	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
Quam-----	5	0-9	Silty clay loam	CL	A-7	0	0	100	100	90-100	85-95	40-50	15-25
		9-60	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		60-68	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		68-80	Clay loam, silty clay loam, loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	90-100	85-95	70-90	20-50	5-20
Rondell-----	3	0-9	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-100	35-50	10-25
		9-30	Silt loam, silty clay loam	CL	A-4, A-6, A-7	0	0	100	100	90-100	85-100	30-50	8-25
		30-80	Silt loam, silty clay loam	CL	A-4, A-6, A-7	0	0	100	100	90-100	85-100	30-50	8-25

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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		
J27A:													
Tara-----	2	0-19	Silt loam	OL, ML	A-4, A-6	0	0	100	100	90-100	70-90	30-40	2-12
		19-27	Silt loam, loam	CL-ML, ML	A-4, A-6	0	0	100	100	85-100	80-90	20-40	2-12
		27-33	Loam, clay loam	CL, CL-ML	A-4, A-6	0-1	0-2	95-100	85-95	80-90	55-80	20-40	6-20
		33-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J28A:													
Vallers, bouldery-----													
	90	0-12	Clay loam	CL, OL, ML	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		12-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		60-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Parnell, depressional---													
	10	0-22	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		22-55	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		55-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50
J29A:													
Cathro-----													
	90	0-9	Muck	PT	A-8	0	0	---	---	---	---	---	---
		9-18	Muck	PT	A-8	0	0	---	---	---	---	---	---
		18-50	Silt loam, loam, clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	85-100	75-100	60-100	35-90	20-40	5-20
		50-80	Loam, silt loam, clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	85-100	75-100	60-100	35-90	20-40	5-20
Colvin-----													
	5	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		10-25	Silt loam, silty clay loam, loam	CL, CH	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
		25-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
Vallers-----													
	5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J30A:													
Tara-----	90	0-19	Silt loam	OL, ML	A-4, A-6	0	0	100	100	90-100	70-90	30-40	2-12
		19-27	Silt loam, loam	CL-ML, ML	A-4, A-6	0	0	100	100	85-100	80-90	20-40	2-12
		27-33	Loam, clay loam	CL, CL-ML	A-4, A-6	0-1	0-2	95-100	85-95	80-90	55-80	20-40	6-20
		33-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Balaton-----	5	0-13	Loam	CL	A-6	0	0-5	95-100	90-95	75-85	60-80	32-36	12-15
		13-31	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		31-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Byrne-----	3	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	90-100	70-90	28-36	9-15
		8-23	Silt loam, loam, silty clay loam	CL	A-4, A-6	0	0	100	100	85-100	60-90	28-39	9-18
		23-28	Silt loam, loam, silty clay loam	CL	A-4, A-6	0	0	100	100	85-100	60-90	28-39	9-18
		28-72	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		72-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Quam-----	2	0-9	Silty clay loam	CL	A-7	0	0	100	100	90-100	85-95	40-50	15-25
		9-60	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		60-68	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		68-80	Clay loam, silty clay loam, loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	90-100	85-95	70-90	20-50	5-20
J31B:													
Arvilla-----	45	0-9	Sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	95-100	90-100	50-80	20-45	15-30	NP-15
		9-14	Sandy loam, coarse sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	90-100	85-100	50-80	20-45	15-40	NP-15
		14-48	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP
		48-80	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J31B: Sandberg-----	30	0-8	Gravelly sandy loam	SM, SP-SM	A-2, A-1, A-3	0-3	0-5	75-95	50-95	35-70	5-35	---	NP-5
		8-32	Gravelly coarse sand, coarse sand, very gravelly sand	SP, SP-SM	A-1, A-2, A-3	0-3	0-5	60-95	40-95	30-65	2-10	---	NP
		32-80	Gravelly sand, coarse sand, sand	SP, SP-SM	A-1, A-2, A-3	0-3	0-5	60-95	40-95	30-65	2-10	---	NP
Renshaw-----	10	0-7	Loam	CL, ML	A-4, A-6	0	0-5	95-100	90-100	70-100	50-75	30-40	5-15
		7-15	Loam, sandy clay loam, gravelly loam	CL, ML, SC, SC-SM	A-4, A-6	0	0-5	95-100	55-100	45-90	35-70	20-40	3-15
		15-20	Gravelly loamy sand, very gravelly loamy sand, gravelly sand	GW-GM, SM, SW, SW-SM	A-1, A-2	0	0-5	45-95	30-80	10-60	0-15	0-25	NP-5
		20-60	Gravelly loamy sand, very gravelly loamy sand, gravelly sand	GW-GM, SM, SW, SW-SM	A-1, A-2	0	0-5	45-95	30-80	10-60	0-15	0-25	NP-5
Sioux-----	10	0-5	Loam	CL, ML	A-4, A-6	0	0-5	95-100	85-100	70-90	55-75	30-40	5-15
		5-8	Loam, gravelly loam	GM, SM	A-4, A-2	0	0-5	60-90	50-80	45-70	25-50	20-35	NP-7
		8-60	Gravelly loamy sand, very gravelly loamy sand, very gravelly sand	GM, SP, SM, GP	A-1	0	0-5	25-75	20-60	5-35	0-25	0-25	NP-5
Fordtown-----	5	0-30	Loam	ML, CL	A-6, A-4	0	0	95-100	90-100	45-100	45-90	30-45	5-20
		30-36	Clay loam, loam, silt loam	CL	A-4	0	0	95-100	90-100	45-100	45-100	28-34	9-14
		36-80	Sand, gravelly loamy sand, very gravelly sand	SW, SM, SW-SM	A-1, A-3, A-2-4	0	0	65-85	35-80	0-80	0-35	15-21	NP-4

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J32A: Bigstone-----	80	0-10	Silty clay loam	CL	A-7	0	0	100	100	80-100	80-100	37-43	15-21
		10-30	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	95-100	90-98	75-90	30-43	11-21
		30-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Urness-----	10	0-9	Mucky silt loam	CL, CL-ML, OL	A-7, A-4, A-6	0	0	100	100	90-100	70-95	20-50	3-20
		9-32	Mucky silt loam, mucky silty clay loam, silty clay loam	CL, CL-ML, ML, OL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-95	20-50	3-30
		32-80	Silty clay loam, loam, clay loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Colvin-----	5	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		10-25	Silt loam, silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
		25-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
Vallers-----	5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J33D2: Sisseton, eroded	70	0-8	Loam	CL, ML	A-4, A-6	0	0-5	95-100	90-100	90-100	60-75	30-40	5-15
		8-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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											
J33D2: Heimdal, eroded	10	0-10	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-1	95-100	85-95	55-85	50-70	20-35	3-15
		10-21	Loam, fine sandy loam, sandy loam	CL, ML, SC, SM, CL-ML	A-4, A-6	0-1	0-1	95-100	85-95	50-80	35-65	15-30	3-15
		21-38	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		38-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Esmond, eroded--	10	0-8	Loam	ML	A-4	0	0-1	95-100	85-100	85-100	60-90	20-35	NP-10
		8-30	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		30-80	Stratified sandy loam to loam to silt loam	CL-ML, CL, SM	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Heimdal, slightly eroded	5	0-8	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-1	95-100	85-95	55-85	50-70	20-35	3-15
		8-16	Loam, fine sandy loam, sandy loam	CL, ML, SC, SM, CL-ML	A-4, A-6	0-1	0-1	95-100	85-95	50-80	35-65	15-30	3-15
		16-27	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		27-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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													
J33D2:													
Emrick-----	5	0-15	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-100	60-90	0-40	NP-10
		15-25	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-95	55-75	0-40	NP-10
		25-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	CL-ML, CL, SM	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
J34B:													
Byrne-----	45	0-10	Silt loam	ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	20-40	3-18
		10-23	Silt loam, loam	CL, ML	A-4, A-6	0	0	100	100	85-100	60-90	20-40	3-18
		23-28	Loam, silt loam	ML, CL	A-6, A-4	0	0	100	100	85-100	60-90	20-40	3-18
		28-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Buse-----	35	0-8	Loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		8-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Buse, eroded----	10	0-9	Loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		9-34	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		34-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Hokans-----	5	0-15	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		15-22	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Tara-----	5	0-19	Silt loam	OL, ML	A-4, A-6	0	0	100	100	90-100	70-90	30-40	2-12
		19-27	Silt loam, loam	CL-ML, ML	A-4, A-6	0	0	100	100	85-100	80-90	20-40	2-12
		27-33	Loam, clay loam	CL, CL-ML	A-4, A-6	0-1	0-2	95-100	85-95	80-90	55-80	20-40	6-20
		33-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J35B:													
Hokans-----	45	0-15	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		15-22	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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											
<b>J35B:</b>													
Buse-----	30	0-8	Loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		8-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Barnes-----	10	0-15	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		15-22	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Buse, eroded----	10	0-9	Loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		9-34	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		34-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Svea-----	5	0-13	Loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	85-100	80-95	60-90	20-40	5-20
		13-17	Loam, silt loam	CL, CL-ML	A-4, A-6, A-7	0	0-5	95-100	85-100	80-95	60-90	20-45	5-25
		17-27	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		27-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		<b>J36C2:</b>											
Buse, eroded----	45	0-9	Loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		9-34	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		34-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Barnes, eroded--	20	0-10	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		10-22	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-42	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		42-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Barnes, slightly eroded-----	10	0-15	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		15-22	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Buse, slightly eroded-----	10	0-8	Loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		8-35	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		35-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J36C2: Darnen-----	10	0-24	Loam	CL, CL-ML, ML, OL	A-4	0	0	100	100	85-100	60-90	20-35	2-10
		24-34	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	60-90	20-45	5-25
		34-80	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	90-100	90-100	80-95	60-85	20-45	5-25
Langhei, eroded	5	0-6	Loam	CL, CL-ML	A-4, A-6	0	0-3	95-100	90-100	75-90	55-80	20-40	5-20
		6-15	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		15-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J37D2: Langhei, eroded	60	0-6	Loam	CL, CL-ML	A-4, A-6	0	0-3	95-100	90-100	75-90	55-80	20-40	5-20
		6-15	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		15-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Barnes, eroded--	15	0-10	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		10-22	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-42	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		42-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Buse, eroded----	10	0-9	Loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		9-34	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		34-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Darnen-----	10	0-24	Loam	CL, CL-ML, ML, OL	A-4	0	0	100	100	85-100	60-90	20-35	2-10
		24-34	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	60-90	20-45	5-25
		34-80	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	90-100	90-100	80-95	60-85	20-45	5-25
Barnes, slightly eroded-----	5	0-14	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		14-18	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		18-37	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		37-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J38B: Zell-----	41	0-10	Silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	80-100	30-40	5-15
		10-43	Silt loam, very fine sandy loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	70-100	25-40	5-15
		43-80	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	60-100	15-25	NP-7

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J38B: Eckman-----	39	0-15	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-40	NP-10
		15-32	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	95-100	95-100	90-100	80-100	20-40	NP-10
		32-42	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
		42-80	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
Zell, eroded----	10	0-9	Silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	80-100	30-40	5-15
		9-28	Silt loam, very fine sandy loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	70-100	25-40	5-15
		28-80	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	60-100	15-25	NP-7
Egeland-----	5	0-8	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		8-30	Sandy loam, very fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		30-35	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-4, A-2	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		35-48	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		48-80	Loamy sand, loamy fine sand, loamy very fine sand	SP-SM, SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J38B: Hantho-----	5	0-12	Silt loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	85-100	21-36	4-10
		12-24	Silt loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		24-65	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		65-80	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
J38C2: Zell, eroded----	45	0-9	Silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	80-100	30-40	5-15
		9-28	Silt loam, very fine sandy loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	70-100	25-40	5-15
		28-80	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	60-100	15-25	NP-7
Eckman, eroded--	20	0-8	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-40	NP-10
		8-31	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	95-100	95-100	90-100	80-100	20-40	NP-10
		31-50	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
		50-80	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
Zell, slightly eroded-----	15	0-10	Silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	80-100	30-40	5-15
		10-43	Silt loam, very fine sandy loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	70-100	25-40	5-15
		43-80	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	60-100	15-25	NP-7

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J38C2: Hantho-----	10	0-12	Silt loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	85-100	21-36	4-10
		12-24	Silt loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		24-65	Silt loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
		65-80	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	80-100	21-36	4-9
Eckman, slightly eroded-----	5	0-15	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-40	NP-10
		15-32	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	95-100	95-100	90-100	80-100	20-40	NP-10
		32-42	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
		42-80	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	80-90	10-28	NP-10
Egeland-----	5	0-8	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		8-30	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		30-35	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		35-48	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		48-80	Loamy sand, loamy fine sand, loamy very fine sand	SP-SM, SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
J39A: Udorthents-----	100	---	---	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
J40A:		In											
Foxlake-----	85	0-23	Silty clay	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		23-39	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		39-80	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
Audubon-----	5	0-14	Silty clay	CH, CL	A-7	0-1	0-2	95-100	94-99	90-99	70-94	43-66	21-39
		14-36	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	94-99	90-99	70-94	43-66	21-39
		36-80	Silty clay loam, silty clay, clay loam	CH, CL	A-7	0-1	0-2	95-100	94-99	90-99	70-94	43-66	21-39
Calcareous soils	5	0-10	Silty clay	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		10-25	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		25-80	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
Soils in depressions----	5	0-26	Silty clay	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		26-33	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		33-80	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
					Pct	Pct					Pct		
J41A: Urness-----	80	0-9	Mucky silt loam	CL, CL-ML, OL	A-4, A-6, A-7	0	0	100	100	90-100	70-95	20-50	3-20
			9-32	Mucky silt loam, mucky silty clay loam, silty clay loam	CL, CL-ML, ML, OL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-95	20-50
		32-80	Silty clay loam, loam, clay loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Bigstone-----	10	0-10	Silty clay loam	CL	A-7	0	0	100	100	80-100	80-100	37-43	15-21
		10-30	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	95-100	90-98	75-90	30-43	11-21
		30-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Colvin-----	5	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		10-25	Silt loam, silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
		25-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	25-55	10-30
Vallers-----	5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J42C: Sandberg-----	60	0-10	Gravelly sandy loam	SM, SP-SM	A-2, A-1, A-3	0-3	0-5	75-95	50-95	35-70	5-35	---	NP-5
10-22		Gravelly sand, coarse sand, sand	SP, SP-SM	A-1, A-2, A-3	0-3	0-5	60-95	40-95	30-65	2-10	---	NP	
22-80		Gravelly sand, coarse sand, sand	SP, SP-SM	A-2, A-3, A-1	0-3	0-5	60-95	40-95	30-65	2-10	---	NP	

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J42C: Arvilla-----	30	0-9	Sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	95-100	90-100	50-80	20-45	15-30	NP-15
		9-14	Sandy loam, loam, coarse sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	90-100	85-100	50-80	20-45	15-40	NP-15
		14-48	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP
		48-80	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP
Everts-----	10	0-38	Loam	CL, CL-ML, ML, OL	A-4	0	0	100	100	85-100	60-90	20-35	2-10
		38-54	Loam, sandy loam	CL, CL-ML	A-6, A-7, A-4	0	0	100	100	85-100	60-90	20-45	5-25
		54-80	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP
J43A: Quam, depressional---	30	0-33	Silt loam	ML, OL	A-4, A-5, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-20
		33-50	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		50-60	Clay loam, silty clay loam, silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	90-100	85-95	70-90	20-50	5-20
Cathro-----	30	0-20	Muck	PT	A-8	0	0	---	---	---	---	---	---
		20-34	Muck	PT	A-8	0	0	---	---	---	---	---	---
		34-40	Loam, silt loam, clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	80-100	65-100	60-100	35-90	20-40	4-20
		40-80	Loam, silt loam, clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	80-100	65-100	60-100	35-90	20-40	4-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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													
J43A: Urness-----	30	0-20	Mucky silt loam	CL, CL-ML, OL	A-4, A-6, A-7	0	0	100	100	90-100	70-95	20-50	3-20
20-45		Mucky silt loam, mucky silty clay loam, silty clay loam	CL, CL-ML, OL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-95	20-50	3-30	
45-60		Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20	
Colvin-----	5	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
10-25		Silt loam, silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30	
25-80		Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30	
Vallers-----	5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
14-38		Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20	
38-80		Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20	
J44B: Esmond-----	45	0-10	Loam	ML	A-4	0	0-1	95-100	85-100	85-100	60-90	20-35	NP-10
10-30		Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11	
30-80		Stratified sandy loam to loam to silt loam	CL-ML, CL, SM	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11	
Heimdal-----	40	0-10	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-1	95-100	85-95	55-85	50-70	20-35	3-15
10-22		Loam, fine sandy loam, sandy loam	CL, ML, SC, SM, CL-ML	A-4, A-6	0-1	0-1	95-100	85-95	50-80	35-65	15-30	3-15	
22-42		Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11	
42-80		Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11	

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J44B: Esmond, eroded--	10	0-9	Loam	ML	A-4	0	0-1	95-100	85-100	85-100	60-90	20-35	NP-10
		9-44	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-4, A-6	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		44-80	Stratified sandy loam to loam to silt loam	CL-ML, CL, SM	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Emrick-----	5	0-15	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-100	60-90	0-40	NP-10
		15-25	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-95	55-75	0-40	NP-10
		25-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	CL, SM, CL-ML	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
J44C2: Esmond, eroded--	40	0-8	Loam	ML	A-4	0	0-1	95-100	85-100	85-100	60-90	20-35	NP-10
		8-30	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		30-80	Stratified sandy loam to loam to silt loam	CL-ML, CL, SM	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Heimdal, eroded	25	0-7	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-1	95-100	85-95	55-85	50-70	20-35	3-15
		7-16	Loam, fine sandy loam, sandy loam	CL, ML, SC, SM, CL-ML	A-4, A-6	0-1	0-1	95-100	85-95	50-80	35-65	15-30	3-15
		16-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-4, A-6	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J44C2: Esmond, slightly eroded-----	15	0-10	Loam	ML	A-4	0	0-1	95-100	85-100	85-100	60-90	20-35	NP-10
		10-30	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		30-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Heimdal, slightly eroded	10	0-8	Loam	CL, CL-ML, ML	A-6, A-4	0-1	0-1	95-100	85-95	55-85	50-70	20-35	3-15
		8-16	Loam, fine sandy loam, sandy loam	CL, ML, SC, SM, CL-ML	A-4, A-6	0-1	0-1	95-100	85-95	50-80	35-65	15-30	3-15
		16-27	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		27-80	Stratified sandy loam to loam to silt loam	CL-ML, CL, SM	A-4, A-6	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Emrick-----	5	0-15	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-100	60-90	0-40	NP-10
		15-25	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-95	55-75	0-40	NP-10
		25-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-4, A-6	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Sisseton, eroded	5	0-8	Loam	CL, ML	A-4, A-6	0	0-5	95-100	90-100	90-100	60-75	30-40	5-15
		8-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J45F: Sandberg-----	80	0-12	Sandy loam	SM	A-2	0-3	0-5	90-100	88-98	50-65	25-35	15-20	NP-5
		12-28	Gravelly sand, coarse sand, sand	SP, SP-SM	A-1, A-2, A-3	0-3	0-5	60-95	40-95	30-65	2-10	---	NP
		28-80	Gravelly sand, coarse sand, sand	SP, SP-SM	A-1, A-2, A-3	0-3	0-5	60-95	40-95	30-65	2-10	---	NP
Everts-----	10	0-38	Loam	CL, CL-ML, ML, OL	A-4	0	0	100	100	85-100	60-90	20-35	2-10
		38-54	Loam, sandy loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	60-90	20-45	5-25
		54-80	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP
Arvilla-----	5	0-9	Sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	95-100	90-100	50-80	20-45	15-30	NP-15
		9-14	Sandy loam, coarse sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	90-100	85-100	50-80	20-45	15-40	NP-15
		14-48	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP
		48-80	Gravelly sand, coarse sand, very gravelly coarse sand	GM, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	35-100	25-100	10-60	0-15	---	NP
Sioux-----	5	0-5	Loam	CL, ML	A-4, A-6	0	0-5	95-100	85-100	70-90	55-75	30-40	5-15
		5-8	Loam, gravelly loam	GM, SM	A-4, A-2	0	0-5	60-90	50-80	45-70	25-50	20-35	NP-7
		8-60	Gravelly loamy sand, very gravelly loamy sand, very gravelly sand	GM, SP, SM, GP	A-1	0	0-5	25-75	20-60	5-35	0-25	0-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J46B: Byrne-----	85	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	90-100	70-90	28-36	9-15
		8-23	Silt loam, loam, silty clay loam	CL	A-4, A-6	0	0	100	100	85-100	60-90	28-39	9-18
		23-28	Silt loam, loam, silty clay loam	CL	A-4, A-6	0	0	100	100	85-100	60-90	28-39	9-18
		28-72	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		72-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Hokans-----	7	0-15	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		15-22	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Buse-----	5	0-8	Loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		8-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Quam-----	3	0-9	Silty clay loam	CL	A-7	0	0	100	100	90-100	85-95	40-50	15-25
		9-60	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		60-68	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		68-80	Clay loam, silty clay loam, loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	90-100	85-95	70-90	20-50	5-20
J47A: Swenoda-----	85	0-17	Sandy loam	SM	A-2, A-4	0	0	100	95-100	70-100	30-50	20-30	NP-7
		17-29	Fine sandy loam, sandy loam	SM, CL-ML, ML, SC-SM	A-2, A-4	0	0	100	95-100	60-100	30-55	15-30	NP-10
		29-80	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6, A-7	0	0-5	90-100	90-100	75-100	50-95	25-50	5-30

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J47A:													
Clontarf-----	10	0-15	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
		15-25	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		25-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5
Egeland-----	5	0-15	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		15-40	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		40-60	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		60-80	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
J48A:													
Bigstone-----	40	0-18	Silty clay loam	CL, ML, OL	A-7	0	0	100	100	80-100	80-100	37-43	12-21
		18-48	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	95-100	90-98	75-90	30-43	11-21
		48-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Parnell-----	40	0-22	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		22-55	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		55-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50
Colvin-----	10	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		10-25	Silt loam, silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
		25-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J48A: Vallars-----	10	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J49A: Lakepark-----	50	0-8	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	65-90	20-40	2-15
		8-27	Clay loam, loam, silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	65-90	30-40	7-20
		27-41	Silty clay loam, clay loam, loam	CL	A-6, A-7	0	0-5	95-100	95-100	85-100	65-90	30-45	15-30
		41-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Parnell, depressional---	35	0-22	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		22-55	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		55-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50
Emrick-----	8	0-15	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-100	60-90	0-40	NP-10
		15-25	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-95	55-75	0-40	NP-10
		25-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Vallars-----	7	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J50A: Balaton-----	45	0-13	Loam	CL	A-6	0	0-5	95-100	90-95	75-85	60-80	32-36	12-15
		13-31	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		31-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J50A:													
Tara-----	35	0-22	Silty clay loam	ML, OL	A-4, A-6	0	0	100	100	90-100	70-90	30-40	2-12
		22-38	Silt loam, loam	CL-ML, ML	A-4, A-6	0	0	100	100	85-100	80-90	20-40	2-12
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
McIntosh-----	10	0-8	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		8-27	Silt loam, silty clay loam, loam	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	25-55	10-30
		27-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Well drained soils-----	5	0-10	Loam	CL	A-6	0	0-5	95-100	90-95	75-85	60-80	32-36	12-15
		10-27	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		27-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Winger-----	5	0-7	Silty clay loam	CL	A-6	0	0	100	100	90-100	70-90	30-40	10-15
		7-22	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-90	20-40	2-15
		22-27	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-90	20-40	2-15
		27-31	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-90	20-40	2-15
		31-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J51A:													
Bearden-----	60	0-16	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		16-37	Silt loam, silty clay loam, loam	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	25-55	10-30
		37-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	25-55	10-30

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J51A: Quam, depressional---	30	0-28	Silty clay loam	CL	A-7	0	0	100	100	90-100	85-95	40-50	15-25
		28-48	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		48-80	Clay loam, silty clay loam, silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	90-100	85-95	70-90	20-50	5-20
Rondell-----	7	0-9	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-100	35-50	10-25
		9-30	Silt loam, silty clay loam	CL	A-7, A-4, A-6	0	0	100	100	90-100	85-100	30-50	8-25
		30-80	Silt loam, silty clay loam	CL	A-4, A-6, A-7	0	0	100	100	90-100	85-100	30-50	8-25
Winger-----	3	0-7	Silty clay loam	CL	A-6	0	0	100	100	90-100	70-90	30-40	10-15
		7-22	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-90	20-40	2-15
		22-27	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-90	20-40	2-15
		27-31	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-90	20-40	2-15
		31-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J52A: Rondell-----	85	0-9	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-100	35-50	10-25
		9-30	Silt loam, silty clay loam	CL	A-4, A-6, A-7	0	0	100	100	90-100	85-100	30-50	8-25
		30-80	Silt loam, silty clay loam	CL	A-4, A-6, A-7	0	0	100	100	90-100	85-100	30-50	8-25

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J52A: Zell-----	9	0-10	Silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	80-100	30-40	5-15
		10-43	Silt loam, very fine sandy loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	70-100	25-40	5-15
		43-80	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	85-100	60-100	15-25	NP-7
Bearden-----	6	0-16	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		16-37	Silt loam, silty clay loam, loam	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	25-55	10-30
		37-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	25-55	10-30
J53A: Ortonville-----	85	0-8	Loam	CL-ML, ML	A-4	0	1-5	95-100	90-95	85-95	55-65	20-30	NP-10
		8-24	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		24-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Well drained soils-----	10	0-13	Loam	CL-ML, ML	A-4	0	1-5	95-100	90-95	85-95	55-65	20-30	NP-10
		13-38	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		38-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Vallers-----	5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
J54A: Marysland, depressionals	90	In											
		0-19	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		19-23	Loam, sandy loam, sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	45-80	20-40	10-20
		23-80	Sand, stratified gravelly coarse sand to fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	70-95	50-90	35-70	5-20	0-14	NP
Marysland soils that are not ponded	10												
		0-9	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		9-12	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		12-27	Loam, clay loam, sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	45-80	20-40	10-20
		27-80	Sand, stratified gravelly coarse sand to fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	70-95	50-90	35-70	5-20	---	NP
J55A: Sedgeville	90												
		0-8	Loam	CL-ML, CL, SC-SM, SC	A-6, A-4	0	0-5	80-100	75-100	65-100	20-65	20-35	4-15
		8-34	Silt loam, sandy loam, coarse sandy loam	CL, SC, SC-SM, SM	A-1, A-2-4, A-4	0	0-5	80-100	75-100	35-100	20-90	15-30	3-10
		34-80	Sand, coarse sand, gravelly loamy coarse sand	SM, SP, SP-SM	A-1	0	0-5	80-100	50-100	15-25	1-20	---	NP
Soils that are frequently flooded	10												
		0-34	Loam	CL-ML, CL, SC-SM, SC	A-6, A-4	0	0-5	80-100	75-100	65-100	20-65	20-35	4-15
		34-80	Sand, coarse sand, gravelly loamy coarse sand	SM, SP, SP-SM	A-1	0	0-5	80-100	50-100	15-25	1-20	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J56A: Winger-----	40	0-7	Silty clay loam	CL	A-6	0	0	100	100	90-100	70-90	30-40	10-15
		7-22	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-90	20-40	2-15
		22-27	Silt loam, silty clay loam	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-90	20-40	2-15
		27-31	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-90	20-40	2-15
		31-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Balaton-----	30	0-13	Loam	CL	A-6	0	0-5	95-100	90-95	75-85	60-80	32-36	12-15
		13-31	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		31-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Parnell, depressional---	20	0-22	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		22-55	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		55-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50
Colvin-----	5	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		10-25	Silt loam, silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
		25-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
Vallars-----	5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J57A: Balaton-----	85	0-13	Loam	CL	A-6	0	0-5	95-100	90-95	75-85	60-80	32-36	12-15
		13-31	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		31-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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											
J57A: Well drained soils-----	5	0-10	Loam	CL	A-6	0	0-5	95-100	90-95	75-85	60-80	32-36	12-15
		10-27	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		27-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Tara-----	5	0-19	Silt loam	ML, OL	A-4, A-6	0	0	100	100	90-100	70-90	30-40	2-12
		19-27	Silt loam, loam	CL-ML, ML	A-4, A-6	0	0	100	100	85-100	80-90	20-40	2-12
		27-33	Loam, clay loam	CL, CL-ML	A-4, A-6	0-1	0-2	95-100	85-95	80-90	55-80	20-40	6-20
		33-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Vallers-----	5	0-14	Clay loam	CL, ML, OL	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		14-38	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		38-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
J58B: Torning-----	45	0-8	Fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-95	30-55	0-20	1-5
		8-30	Fine sandy loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-95	30-55	0-20	1-5
		30-80	Fine sand, very fine sandy loam, loamy very fine sand	SM	A-4	0	0	100	100	70-100	10-45	0-20	NP-4
Egeland-----	40	0-8	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	95-100	75-100	30-50	15-25	NP-7
		8-30	Sandy loam, fine sandy loam	SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	15-50	15-25	NP-7
		30-35	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		35-48	Loamy sand, loamy fine sand, loamy very fine sand	SC-SM, SM, SP-SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5
		48-80	Loamy sand, loamy fine sand, loamy very fine sand	SP-SM, SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	10-45	15-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J58B: Clontarf-----	10	0-15	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-85	25-50	15-30	NP-10
		15-25	Sandy loam, loam, fine sandy loam	ML, SM	A-2, A-4	0	0	100	95-100	60-95	20-60	15-30	NP-10
		25-80	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-80	5-35	15-20	NP-5
Sverdrup-----	5	0-12	Sandy loam	SM	A-4	0	0	100	95-100	60-70	35-50	---	NP
		12-26	Loam, sandy loam, loamy sand	ML, SM	A-2, A-4	0	0	100	95-100	50-75	30-70	15-30	NP-5
		26-80	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	100	95-100	50-90	2-10	---	NP
J59A: Urness, sandy substratum-----	90	0-34	Mucky silty clay loam	CL, CL-ML, OL	A-4, A-6, A-7	0	0	100	100	90-100	70-95	20-50	3-20
		34-66	Mucky silt loam, mucky silty clay loam, silty clay loam	CL, CL-ML, OL	A-4, A-6, A-7	0	0	95-100	90-100	85-100	70-95	20-50	3-30
		66-80	Sand, stratified gravelly coarse sand to fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	70-95	50-90	35-70	5-20	0-14	NP
Marysland-----	10	0-9	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		9-12	Loam	CL	A-6, A-7	0	0	95-100	95-100	85-95	50-80	30-50	10-25
		12-27	Loam, clay loam, sandy clay loam	CL, SC	A-6	0	0	90-100	85-100	80-95	45-80	20-40	10-20
		27-80	Sand, stratified gravelly coarse sand to fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	70-95	50-90	35-70	5-20	---	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J60B: Hattie-----	46	0-8	Silty clay	CH	A-7	0	0	95-100	90-100	75-95	70-90	50-70	23-43
		8-15	Silty clay loam, silty clay	CH	A-7	0	0	95-100	90-100	75-95	70-90	50-70	23-43
		15-22	Silty clay loam, silty clay	CH	A-7	0	0	95-100	90-100	75-95	70-90	50-70	23-43
		22-80	Silty clay loam, silty clay	CH	A-7	0	0	95-100	90-100	75-95	70-90	50-70	23-43
Audubon-----	44	0-14	Silty clay	CH, CL	A-7	0-1	0-2	95-100	94-99	90-99	70-94	43-66	21-39
		14-36	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	94-99	90-99	70-94	43-66	21-39
		36-80	Silty clay loam, silty clay, clay loam	CH, CL	A-7	0-1	0-2	95-100	94-99	90-99	70-94	43-66	21-39
Foxlake-----	10	0-23	Silty clay	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		23-39	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		39-80	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
J60C: Hattie-----	60	0-9	Silty clay	CH	A-7	0	0	95-100	90-100	75-95	70-90	50-70	23-43
		9-19	Silty clay loam, silty clay	CH	A-7	0	0	95-100	90-100	75-95	70-90	50-70	23-43
		19-80	Silty clay, silty clay loam	CH	A-7	0	0	95-100	90-100	75-95	70-90	50-70	23-43

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J60C: Audubon-----	30	0-8	Silty clay	CH, CL	A-7	0-1	0-2	95-100	94-99	90-99	70-94	43-66	21-39
		8-34	Silty clay loam, silty clay, clay loam	CH, CL	A-7	0-1	0-2	95-100	94-99	90-99	70-94	43-66	21-39
		34-80	Silty clay loam, silty clay, clay loam	CH, CL	A-7	0-1	0-2	95-100	94-99	90-99	70-94	43-66	21-39
Foxlake-----	10	0-23	Silty clay	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		23-39	Silty clay loam, silty clay, clay loam	CH, CL	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
		39-80	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0-1	0-2	95-100	95-99	85-95	70-90	43-66	21-39
J61A: Svea, bouldery--	90	0-10	Loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	85-100	80-95	60-90	20-40	5-20
		10-23	Loam, silt loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-5	95-100	85-100	80-95	60-90	20-45	5-25
		23-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		60-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Vallars, bouldery-----	5	0-12	Clay loam	CL, OL, ML	A-6, A-7	0	0	95-100	95-100	95-100	85-95	30-50	11-20
		12-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		60-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Parnell, depressional---	5	0-22	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		22-55	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		55-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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											
J62C: Buse, very bouldery-----	45	0-8	Loam	CL, ML, CL-ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		8-24	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		24-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Barnes, very bouldery-----	25	0-15	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		15-22	Loam, sandy clay loam	SC, CL, CL-ML, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-50	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		50-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Hokans-----	15	0-15	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		15-22	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		22-40	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		40-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Svea, bouldery--	10	0-10	Loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	85-100	80-95	60-90	20-40	5-20
		10-23	Loam, silt loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-5	95-100	85-100	80-95	60-90	20-45	5-25
		23-60	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		60-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Darnen-----	5	0-24	Loam	CL, CL-ML, ML, OL	A-4	0	0	100	100	85-100	60-90	20-35	2-10
		24-34	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	60-90	20-45	5-25
		34-80	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	90-100	90-100	80-95	60-85	20-45	5-25
J62F: Buse, very bouldery-----	50	0-7	Loam	CL, ML, CL-ML	A-4, A-6	0	0	90-100	85-95	70-90	55-80	20-40	3-15
		7-44	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		44-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Barnes, very bouldery-----	40	0-12	Loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	85-100	80-100	50-90	20-40	5-20
		12-19	Loam, sandy clay loam	SC, CL, CL-ML, SC-SM	A-4, A-6	0	0-5	90-100	85-100	75-95	35-80	25-40	5-20
		19-33	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		33-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J62F: Darnen-----	10	0-24	Loam	CL, CL-ML, ML, OL	A-4	0	0	100	100	85-100	60-90	20-35	2-10
		24-34	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	60-90	20-45	5-25
		34-80	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	90-100	90-100	80-95	60-85	20-45	5-25
J63A: Ortonville-----	45	0-8	Loam	CL-ML, ML	A-4	0	1-5	95-100	90-95	85-95	55-65	20-30	NP-10
		8-24	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		24-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Vallers-----	35	0-10	Loam	ML, OL	A-4	0	0	95-100	90-100	80-90	50-80	30-40	4-10
		10-29	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
		29-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Parnell, depressional---	20	0-22	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		22-55	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		55-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50
J64A: Quam-----	90	0-9	Silty clay loam	CL	A-7	0	0	100	100	90-100	85-95	40-50	15-25
		9-60	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		60-68	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		68-80	Clay loam, silty clay loam, loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	90-100	85-95	70-90	20-50	5-20

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J64A: Colvin-----	5	0-10	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	80-95	25-55	10-30
		10-25	Silt loam, silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
		25-80	Stratified silt loam to silty clay loam, loam	CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	25-55	10-30
Quam, depressional---	5	0-10	Silty clay loam	CL	A-7	0	0	100	100	90-100	85-95	40-50	15-25
		10-45	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
		45-80	Silty clay loam, silt loam, loam	CL, ML	A-4, A-6, A-7	0	0	100	100	80-100	70-95	30-50	5-25
J65A: Shakopee-----	90	0-9	Silty clay	CL, CH	A-7	0	0	95-100	90-100	80-100	70-95	45-80	20-50
		9-15	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	95-100	90-100	80-100	70-95	40-80	20-50
		15-38	Silty clay, silty clay loam, clay	CH, CL	A-7	0	0	95-100	90-100	80-100	70-95	40-80	20-50
		38-80	Fine sand, sand	SM, SP-SM, SC-SM	A-1-b, A-2	0	0-5	85-100	80-100	40-80	10-35	15-20	NP-6
Soils in depressions----	10	0-9	Silty clay	CL, CH	A-7	0	0	95-100	90-100	80-100	70-95	45-80	20-50
		9-34	Clay, silty clay, silty clay loam	CL, CH	A-7	0	0	95-100	90-100	80-100	70-95	40-80	20-50
		34-45	Silty clay, silty clay loam, clay	CH, CL	A-7	0	0	95-100	90-100	80-100	70-95	40-80	20-50
		45-80	Fine sand, sand	SM, SP-SM, SC-SM	A-1-b, A-2	0	0-5	85-100	80-100	40-80	10-35	15-20	NP-6

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J66A: Emrick-----	85	0-15	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-100	60-90	0-40	NP-10
		15-25	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-95	55-75	0-40	NP-10
		25-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Lakepark-----	10	0-8	Loam	CL, CL-ML, ML	A-6, A-4	0	0	100	95-100	90-100	65-90	20-40	2-15
		8-27	Clay loam, loam, silt loam	CL, ML	A-4, A-6	0	0	100	95-100	90-100	65-90	30-40	7-20
		27-41	Silty clay loam, clay loam, loam	CL	A-6, A-7	0	0-5	95-100	95-100	85-100	65-90	30-45	15-30
		41-80	Clay loam, loam	CL	A-6	0-1	0-2	95-100	90-98	75-90	50-75	30-40	12-20
Heimdal-----	5	0-10	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-1	95-100	85-95	55-85	50-70	20-35	3-15
		10-22	Loam, fine sandy loam, sandy loam	CL-ML, CL, ML, SC, SM	A-4, A-6	0-1	0-1	95-100	85-95	50-80	35-65	15-30	3-15
		22-42	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		42-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
J67A: Fordtown-----	85	0-30	Loam	ML, CL	A-6, A-4	0	0	95-100	90-100	45-100	45-90	30-45	5-20
		30-36	Clay loam, loam, silt loam	CL	A-4	0	0	95-100	90-100	45-100	45-100	28-34	9-14
		36-80	Sand, gravelly loamy sand, very gravelly sand	SW, SM, SW-SM	A-1, A-3, A-2-4	0	0	65-85	35-80	0-80	0-35	15-21	NP-4

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	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													
J67A: Renshaw-----	8	0-7	Loam	CL, ML	A-4, A-6	0	0-5	95-100	90-100	70-100	50-75	30-40	5-15
		7-15	Loam, sandy clay loam, gravelly loam	CL, ML, SC, SC-SM	A-4, A-6	0	0-5	95-100	55-100	45-90	35-70	20-40	3-15
		15-20	Gravelly loamy sand, very gravelly loamy sand, gravelly sand	GW-GM, SM, SW, SW-SM	A-1, A-2	0	0-5	45-95	30-80	10-60	0-15	0-25	NP-5
		20-60	Gravelly loamy sand, very gravelly loamy sand, gravelly sand	GW-GM, SM, SW, SW-SM	A-1, A-2	0	0-5	45-95	30-80	10-60	0-15	0-25	NP-5
Spottswood-----	7	0-10	Loam	ML, CL	A-6, A-4	0	0	95-100	90-100	45-100	45-90	30-45	5-20
		10-26	Clay loam, loam, silt loam	CL	A-4	0	0	95-100	90-100	45-100	45-100	28-34	9-14
		26-80	Sand, gravelly loamy sand, very gravelly sand	SW, SM, SW-SM	A-1, A-3, A-2-4	0	0	65-85	35-80	0-80	0-35	15-21	NP-4
J68A: Kerkhoven-----	55	0-10	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	65-90	20-40	2-15
		10-35	Clay loam, loam, silt loam	CL	A-6	0	0	100	95-100	90-100	65-90	30-40	10-20
		35-53	Clay loam, loam	CL	A-6, A-7	0	0-5	95-100	95-100	85-100	65-90	30-45	15-30
		53-63	Sandy loam, clay loam, loam	CL	A-6	0	0-5	95-100	90-100	75-85	55-75	30-40	10-20
		63-80	Loam, sandy loam, fine sandy loam	CL-ML, CL, SM	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
J68A: Friberg, depressional---	35	0-23	Silt loam	CL	A-4, A-6	0-1	0-2	98-100	95-98	85-98	60-85	21-38	8-18
		23-47	Clay loam, silty clay loam	CL	A-4, A-6	0-1	0-5	95-100	90-98	70-95	50-80	28-43	9-21
		47-60	Sandy loam, clay loam, loam	CL	A-6	0	0-5	95-100	90-100	75-85	55-75	30-40	10-20
		60-80	Fine sandy loam, sandy loam, loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
Emrick-----	10	0-15	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-100	60-90	0-40	NP-10
		15-25	Loam	ML, CL-ML	A-4	0-1	0-1	95-100	95-100	85-95	55-75	0-40	NP-10
		25-36	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
		36-80	Stratified sandy loam to loam to silt loam	SM, CL-ML, CL	A-6, A-4	0-1	0-2	95-100	90-98	60-85	40-65	23-30	3-11
L33B: Kandiyohi-----	85	0-10	Clay	CH	A-7	0-1	1-2	95-100	95-98	95-98	85-95	55-65	25-40
		10-23	Silty clay, silty clay loam, clay	CH	A-7	0-1	1-2	95-100	95-98	95-98	85-95	55-70	25-50
		23-64	Clay loam, silty clay, clay	CH	A-7	0-2	2-4	95-100	95-98	90-95	75-95	50-70	20-45
		64-80	Clay loam, clay	CH, CL	A-7	0-2	2-5	95-100	95-98	80-95	70-95	45-70	20-45
Cosmos-----	10	0-15	Silty clay	CH	A-7	0-1	0-1	98-100	98-100	95-100	85-95	50-65	30-40
		15-30	Silty clay, silty clay loam, clay	CH	A-7	0-1	0-2	98-100	98-100	95-100	85-95	50-75	30-50
		30-36	Silty clay, silty clay loam, clay	CH	A-7	0-1	0-2	98-100	98-100	95-100	85-95	50-75	30-50
		36-80	Clay, clay loam, silty clay	CH, CL	A-7	0-2	0-4	95-100	95-98	90-95	70-95	40-60	18-35

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
				Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
L33B:		In											
Okoboji-----	5	0-32	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		32-56	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		56-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50
L34A:													
Cosmos-----	85	0-15	Silty clay	CH	A-7	0-1	0-1	98-100	98-100	95-100	85-95	50-65	30-40
		15-30	Silty clay, silty clay loam, clay	CH	A-7	0-1	0-2	98-100	98-100	95-100	85-95	50-75	30-50
		30-36	Silty clay, silty clay loam, clay	CH	A-7	0-1	0-2	98-100	98-100	95-100	85-95	50-75	30-50
		36-80	Clay, clay loam, silty clay	CH, CL	A-7	0-2	0-4	95-100	95-98	90-95	70-95	40-60	18-35
Kandiyohi-----	10	0-10	Clay	CH	A-7	0-1	1-2	95-100	95-98	95-98	85-95	55-65	25-40
		10-23	Silty clay, silty clay loam, clay	CH	A-7	0-1	1-2	95-100	95-98	95-98	85-95	55-70	25-50
		23-64	Clay loam, silty clay, clay	CH	A-7	0-2	2-4	95-100	95-98	90-95	75-95	50-70	20-45
		64-80	Clay loam, clay	CH, CL	A-7	0-2	2-5	95-100	95-98	80-95	70-95	45-70	20-45
Okoboji-----	5	0-32	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	40-60	15-30
		32-56	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	70-100	40-80	20-50
		56-80	Clay loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	95-100	90-100	80-95	70-95	30-80	15-50
M-W: Water, miscellaneous--	100	---	---	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and component name	Pct. of map unit	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
				Unified	AASHTO	>10	3-10	4	10	40	200		
						inches	inches						
		In				Pct	Pct					Pct	
W: Water-----	100	---	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
GP:		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
Pits, gravel-----	80	---	---	---	---	---	---	---	---	---	-	---	---
Udipsamments-----	20	---	---	---	---	---	---	---	---	---	-	---	---
J1A:													
Parnell, depressional	90	0-22	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	7	38
		22-55	35-60	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37			
		55-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43			
Colvin-----	5	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
Vallers-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
J2A:													
La Prairie-----	90	0-9	18-27	1.10-1.40	0.6-2.0	0.17-0.22	0.9-3.2	2.0-6.0	.24	.24	5	6	48
		9-38	18-35	1.10-1.50	0.6-2.0	0.17-0.22	0.9-5.8	2.0-6.0	.28	.28			
		38-50	18-35	1.10-1.50	0.6-2.0	0.17-0.22	0.9-5.8	1.0-2.0	.28	.28			
		50-60	18-35	1.30-1.55	0.6-2.0	0.15-0.22	0.9-5.8	0.5-2.0	.28	.28			
Lamoure-----	10	0-27	27-34	1.15-1.25	0.2-2.0	0.19-0.22	3.2-5.4	4.0-8.0	.28	.28	5	4L	86
		27-34	20-34	1.20-1.35	0.2-2.0	0.17-0.20	1.0-5.4	1.0-3.0	.32	.32			
		34-60	20-34	1.20-1.35	0.2-2.0	0.17-0.20	1.0-5.4	0.5-1.0	.43	.43			
J3A:													
Arveson-----	80	0-10	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20	5	4L	86
		10-22	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20			
		22-35	10-27	1.40-1.55	0.6-6.0	0.15-0.17	0.5-3.2	1.0-5.0	.24	.20			
		35-80	5-15	1.50-1.65	2.0-20	0.05-0.15	0.2-3.2	0.5-1.0	.17	.15			
Marysland-----	10	0-9	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	5.0-8.0	.24	.24	4	4L	86
		9-12	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	5.0-8.0	.24	.24			
		12-27	18-30	1.35-1.50	0.6-2.0	0.15-0.19	0.9-4.2	0.5-1.0	.32	.32			
		27-80	1-5	1.55-1.65	6.0-20	0.02-0.07	0.0-0.2	0.0-0.5	.10	.15			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
J3A: Marysland, depressional-----	5	0-19	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	6.0-10	.24	.24	4	4L	86
		19-23	18-30	1.35-1.50	0.6-2.0	0.15-0.19	0.9-4.2	0.5-1.0	.28	.28			
		23-80	1-5	1.55-1.65	6.0-20	0.02-0.07	0.0-0.2	0.0-0.5	.15	.15			
Malachy-----	5	0-17	5-18	1.35-1.50	2.0-6.0	0.13-0.18	0.2-0.9	3.0-6.0	.17	.20	4	4L	86
		17-28	5-18	1.35-1.50	0.6-6.0	0.12-0.19	0.2-0.9	0.5-1.0	.20	.24			
		28-80	2-10	1.45-1.65	6.0-20	0.02-0.10	0.1-0.5	0.0-0.5	.10	.15			
J4A: Rockwell-----	90	0-9	20-30	1.20-1.45	0.6-2.0	0.18-0.22	1.0-4.2	4.0-8.0	.24	.24	5	4L	86
		9-16	5-30	1.35-1.50	2.0-6.0	0.15-0.17	0.2-4.2	0.5-1.0	.24	.24			
		16-25	5-30	1.35-1.50	2.0-6.0	0.15-0.17	0.2-4.2	0.5-1.0	.24	.24			
		25-45	18-34	1.30-1.50	0.06-0.2	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		45-80	15-30	1.40-1.60	0.2-2.0	0.18-0.22	0.7-4.2	0.1-0.5	.24	.24			
Arveson-----	10	0-10	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20	5	4L	86
		10-22	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20			
		22-35	10-27	1.40-1.55	0.6-6.0	0.15-0.17	0.5-3.2	1.0-5.0	.24	.20			
		35-80	5-15	1.50-1.65	2.0-20	0.05-0.15	0.2-3.2	0.5-1.0	.17	.15			
J5A: Fossum-----	85	0-13	5-18	1.35-1.50	2.0-6.0	0.13-0.18	0.2-0.9	3.0-6.0	.20	.20	3	2	134
		13-21	1-10	1.40-1.55	6.0-20	0.06-0.11	0.0-0.5	1.0-3.0	.17	.17			
		21-80	1-5	1.50-1.70	6.0-20	0.05-0.09	0.0-0.2	0.0-0.5	.17	.17			
Arveson-----	10	0-10	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20	5	4L	86
		10-22	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20			
		22-35	10-27	1.40-1.55	0.6-6.0	0.15-0.17	0.5-3.2	1.0-5.0	.24	.20			
		35-80	5-15	1.50-1.65	2.0-20	0.05-0.15	0.2-3.2	0.5-1.0	.17	.15			
Fossum, depressional--	3	0-8	5-18	1.35-1.50	2.0-6.0	0.13-0.18	0.2-0.9	3.0-6.0	.20	.20	3	2	134
		8-14	1-10	1.40-1.55	6.0-20	0.06-0.11	0.0-0.5	1.0-3.0	.17	.17			
		14-80	1-5	1.50-1.70	6.0-20	0.05-0.09	0.0-0.2	0.0-0.5	.17	.17			
Hecla-----	2	0-9	2-10	1.40-1.50	2.0-20	0.10-0.12	0.1-0.5	1.0-2.0	.17	.17	5	2	134
		9-80	5-10	1.50-1.60	2.0-20	0.06-0.10	0.2-0.5	0.0-1.0	.17	.17			
J6A: McDonaldsville-----	90	0-17	40-60	1.20-1.30	0.06-0.2	0.15-0.18	7.3-13.7	4.0-8.0	.28	.28	5	4	86
		17-36	35-60	1.20-1.30	0.06-0.2	0.14-0.19	5.8-13.7	1.0-3.0	.28	.28			
		36-80	0-10	1.40-1.70	6.0-20	0.07-0.12	0.0-0.5	0.0-0.5	.17	.20			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
J6A: Somewhat poorly drained soils-----	10	0-32	40-60	1.20-1.30	0.06-0.2	0.15-0.18	7.3-13.7	4.0-8.0	.28	.28	5	4	86
		32-46	35-60	1.20-1.30	0.06-0.2	0.14-0.19	5.8-13.7	1.0-3.0	.28	.28			
		46-80	0-10	1.40-1.70	6.0-20	0.07-0.12	0.0-0.5	0.0-0.5	.17	.20			
J7A: Sverdrup-----	85	0-12	10-18	1.35-1.50	2.0-6.0	0.13-0.15	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		12-26	6-18	1.40-1.55	2.0-6.0	0.08-0.14	0.3-0.9	0.5-2.0	.20	.20			
		26-80	0-10	1.50-1.65	6.0-20	0.02-0.06	0.0-0.5	0.0-0.5	.15	.15			
Arveson-----	5	0-10	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20	5	4L	86
		10-22	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20			
		22-35	10-27	1.40-1.55	0.6-6.0	0.15-0.17	0.5-3.2	1.0-5.0	.24	.20			
		35-80	5-15	1.50-1.65	2.0-20	0.05-0.15	0.2-3.2	0.5-1.0	.17	.15			
Clontarf-----	5	0-15	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		15-25	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20			
		25-80	5-10	1.55-1.70	6.0-20	0.05-0.09	0.2-0.5	0.0-0.5	.15	.15			
Egeland-----	5	0-8	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86
		8-30	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		30-35	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		35-48	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		48-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
J7B: Sverdrup-----	90	0-12	10-18	1.35-1.50	2.0-6.0	0.13-0.15	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		12-26	6-18	1.40-1.55	2.0-6.0	0.08-0.14	0.3-0.9	0.5-2.0	.20	.20			
		26-80	0-10	1.50-1.65	6.0-20	0.02-0.06	0.0-0.5	0.0-0.5	.15	.15			
Clontarf-----	5	0-15	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		15-25	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20			
		25-80	5-10	1.55-1.70	6.0-20	0.05-0.09	0.2-0.5	0.0-0.5	.15	.15			
Egeland-----	5	0-8	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86
		8-30	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		30-35	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		35-48	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		48-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi- bility group	erodi- bility index
J8A:													
Egeland-----	80	0-15	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86
		15-40	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		40-60	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		60-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
Clontarf-----	10	0-15	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		15-25	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20			
		25-80	5-10	1.55-1.70	6.0-20	0.05-0.09	0.2-0.5	0.0-0.5	.15	.15			
Sverdrup-----	5	0-12	10-18	1.35-1.50	2.0-6.0	0.13-0.15	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		12-26	6-18	1.40-1.55	2.0-6.0	0.08-0.14	0.3-0.9	0.5-2.0	.20	.20			
		26-80	0-10	1.50-1.65	6.0-20	0.02-0.06	0.0-0.5	0.0-0.5	.15	.15			
Arveson-----	3	0-10	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20	5	4L	86
		10-22	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20			
		22-35	10-27	1.40-1.55	0.6-6.0	0.15-0.17	0.5-3.2	1.0-5.0	.24	.20			
		35-80	5-15	1.50-1.65	2.0-20	0.05-0.15	0.2-3.2	0.5-1.0	.17	.15			
Hantho-----	2	0-12	10-27	1.20-1.40	0.6-2.0	0.22-0.24	0.5-3.2	4.0-6.0	.28	.28	5	5	56
		12-24	10-18	1.30-1.50	0.6-2.0	0.17-0.22	0.5-0.9	2.0-4.0	.28	.28			
		24-65	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
		65-80	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
J8B:													
Egeland-----	80	0-9	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86
		9-26	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		26-39	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		39-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
Clontarf-----	8	0-15	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		15-25	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20			
		25-80	5-10	1.55-1.70	6.0-20	0.05-0.09	0.2-0.5	0.0-0.5	.15	.15			
Sverdrup-----	5	0-12	10-18	1.35-1.50	2.0-6.0	0.13-0.15	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		12-26	6-18	1.40-1.55	2.0-6.0	0.08-0.14	0.3-0.9	0.5-2.0	.20	.20			
		26-80	0-10	1.50-1.65	6.0-20	0.02-0.06	0.0-0.5	0.0-0.5	.15	.15			
Torning-----	3	0-8	10-18	1.45-1.55	2.0-6.0	0.18-0.22	0.5-0.9	0.5-2.0	.32	.32	5	3	86
		8-30	10-18	1.45-1.55	2.0-6.0	0.18-0.22	0.5-0.9	0.5-2.0	.32	.32			
		30-80	5-18	1.45-1.65	2.0-6.0	0.09-0.19	0.2-0.9	0.1-0.5	.32	.32			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
<b>J8B:</b>		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
Eckman-----	2	0-13	10-18	1.20-1.40	0.6-2.0	0.22-0.24	0.5-0.9	3.0-6.0	.32	.32	5	5	56
		13-22	10-18	1.20-1.40	0.6-2.0	0.17-0.22	0.5-0.9	0.5-1.0	.43	.43			
		22-30	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
		30-80	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
Egeland, eroded-----	2	0-7	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	1.0-3.0	.20	.20	5	3	86
		7-20	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		20-39	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		39-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
<b>J9A:</b>													
Estelline-----	90	0-6	20-27	1.10-1.25	0.6-2.0	0.19-0.22	1.0-3.2	4.0-8.0	.28	.28	4	6	48
		6-27	22-30	1.20-1.35	0.6-2.0	0.18-0.21	1.6-4.2	1.0-3.0	.32	.32			
		27-37	20-30	1.25-1.40	0.6-2.0	0.16-0.20	1.0-4.2	0.0-1.0	.43	.43			
		37-60	0-5	1.50-1.70	6.0-60	0.03-0.06	0.0-0.2	0.0-0.5	.10	.17			
Soils that have a thin surface layer---	10	0-10	20-27	1.10-1.25	0.6-2.0	0.19-0.22	1.0-3.2	4.0-8.0	.28	.28	4	6	48
		10-15	22-30	1.20-1.35	0.6-2.0	0.18-0.21	1.6-4.2	1.0-3.0	.32	.32			
		15-26	20-30	1.25-1.40	0.6-2.0	0.16-0.20	1.0-4.2	0.0-1.0	.43	.43			
		26-80	0-5	1.50-1.70	6.0-60	0.03-0.06	0.0-0.2	0.0-0.5	.10	.17			
<b>J10A:</b>													
Sinai-----	90	0-12	40-60	1.15-1.30	0.06-0.2	0.13-0.17	7.3-13.7	3.0-7.0	.28	.28	5	4	86
		12-23	35-60	1.20-1.40	0.06-0.2	0.10-0.19	5.8-13.7	1.0-3.0	.28	.28			
		23-42	35-60	1.20-1.40	0.06-0.2	0.10-0.19	5.8-13.7	0.5-2.0	.28	.28			
		42-60	30-50	1.35-1.40	0.06-0.2	0.10-0.19	4.2-10.5	0.1-0.5	.43	.43			
Fulda-----	10	0-13	40-60	1.15-1.30	0.06-0.2	0.13-0.17	7.3-13.7	3.0-7.0	.28	.28	5	7	38
		13-33	35-60	1.20-1.40	0.06-0.2	0.10-0.19	5.8-13.7	1.0-3.0	.28	.28			
		33-40	35-60	1.20-1.40	0.06-0.2	0.10-0.19	5.8-13.7	0.5-2.0	.28	.28			
		40-60	30-50	1.35-1.40	0.06-0.2	0.10-0.19	4.2-10.5	0.1-0.5	.43	.43			
<b>J10B:</b>													
Sinai-----	90	0-12	40-60	1.15-1.30	0.06-0.2	0.13-0.17	7.3-13.7	3.0-7.0	.28	.28	5	4	86
		12-23	35-60	1.20-1.40	0.06-0.2	0.10-0.19	5.8-13.7	1.0-3.0	.28	.28			
		23-42	35-60	1.20-1.40	0.06-0.2	0.10-0.19	5.8-13.7	0.5-2.0	.28	.28			
		42-60	30-50	1.35-1.40	0.06-0.2	0.10-0.19	4.2-10.5	0.1-0.5	.43	.43			
Fulda-----	10	0-13	40-60	1.15-1.30	0.06-0.2	0.13-0.17	7.3-13.7	3.0-7.0	.28	.28	5	7	38
		13-33	35-60	1.20-1.40	0.06-0.2	0.10-0.19	5.8-13.7	1.0-3.0	.28	.28			
		33-40	35-60	1.20-1.40	0.06-0.2	0.10-0.19	5.8-13.7	0.5-2.0	.28	.28			
		40-60	30-50	1.35-1.40	0.06-0.2	0.10-0.19	4.2-10.5	0.1-0.5	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi- bility group	erodi- bility index
J11A:													
Vallers-----	85	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Parnell, depressional	10	0-22	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	7	38
		22-55	35-60	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37			
		55-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43			
Balaton-----	5	0-13	22-27	1.20-1.35	0.6-2.0	0.20-0.22	1.6-3.2	4.0-8.0	.28	.28	5	4L	86
		13-31	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.5-1.0	.32	.37			
		31-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
J12A:													
Marysland-----	85	0-9	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	5.0-8.0	.24	.24	4	4L	86
		9-12	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	5.0-8.0	.24	.24			
		12-27	18-30	1.35-1.50	0.6-2.0	0.15-0.19	0.9-4.2	0.5-1.0	.32	.32			
		27-80	1-5	1.55-1.65	6.0-20	0.02-0.07	0.0-0.2	0.0-0.5	.10	.15			
Arveson-----	10	0-10	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20	5	4L	86
		10-22	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20			
		22-35	10-27	1.40-1.55	0.6-6.0	0.15-0.17	0.5-3.2	1.0-5.0	.24	.20			
		35-80	5-15	1.50-1.65	2.0-20	0.05-0.15	0.2-3.2	0.5-1.0	.17	.15			
Marysland, depressional-----	3	0-19	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	6.0-10	.24	.24	4	4L	86
		19-23	18-30	1.35-1.50	0.6-2.0	0.15-0.19	0.9-4.2	0.5-1.0	.28	.28			
		23-80	1-5	1.55-1.65	6.0-20	0.02-0.07	0.0-0.2	0.0-0.5	.15	.15			
Malachy-----	2	0-17	5-18	1.35-1.50	2.0-6.0	0.13-0.18	0.2-0.9	3.0-6.0	.17	.20	4	4L	86
		17-28	5-18	1.35-1.50	0.6-6.0	0.12-0.19	0.2-0.9	0.5-1.0	.20	.24			
		28-80	2-10	1.45-1.65	6.0-20	0.02-0.10	0.1-0.5	0.0-0.5	.10	.15			
J13A:													
Oldham-----	90	0-28	35-40	1.15-1.30	0.2-0.6	0.13-0.19	5.8-7.3	4.0-7.0	.37	.37	5	4	86
		28-80	20-40	1.30-1.50	0.06-0.6	0.14-0.20	1.0-7.3	0.1-0.5	.43	.43			
Colvin-----	5	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
Vallers-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
<b>J14F:</b>		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
Esmond-----	85	0-8	10-18	1.30-1.60	0.6-2.0	0.20-0.22	0.5-0.9	1.0-4.0	.28	.28	5	4L	86
		8-27	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		27-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Emrick-----	10	0-15	10-18	1.30-1.60	0.6-2.0	0.20-0.24	0.5-0.9	3.0-8.0	.28	.28	5	5	56
		15-25	10-18	1.30-1.60	0.6-2.0	0.17-0.19	0.5-0.9	1.0-4.0	.28	.28			
		25-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Heimdal-----	5	0-8	10-20	1.30-1.60	0.6-2.0	0.20-0.22	0.5-1.0	3.0-6.0	.24	.24	5	5	56
		8-12	10-18	1.35-1.65	0.6-2.0	0.12-0.19	0.5-0.9	0.5-1.0	.32	.32			
		12-40	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		40-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
<b>J15B:</b>													
Eckman-----	80	0-13	10-18	1.20-1.40	0.6-2.0	0.22-0.24	0.5-0.9	3.0-6.0	.32	.32	5	5	56
		13-22	10-18	1.20-1.40	0.6-2.0	0.17-0.22	0.5-0.9	0.5-1.0	.43	.43			
		22-30	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
		30-80	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
Eckman, eroded-----	5	0-13	10-18	1.20-1.40	0.6-2.0	0.22-0.24	0.5-0.9	2.0-5.0	.32	.32	5	5	56
		13-22	10-18	1.20-1.40	0.6-2.0	0.17-0.22	0.5-0.9	0.5-1.0	.43	.43			
		22-30	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
		30-80	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
Egeland-----	5	0-9	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86
		9-26	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		26-39	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		39-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
Hantho-----	5	0-12	10-27	1.20-1.40	0.6-2.0	0.22-0.24	0.5-3.2	4.0-6.0	.28	.28	5	5	56
		12-24	10-18	1.30-1.50	0.6-2.0	0.17-0.22	0.5-0.9	2.0-4.0	.28	.28			
		24-65	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
		65-80	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
Zell-----	5	0-10	10-18	1.15-1.30	0.6-2.0	0.19-0.22	0.5-0.9	1.0-4.0	.32	.32	5	4L	86
		10-43	10-18	1.25-1.40	0.6-2.0	0.15-0.20	0.5-0.9	0.1-1.0	.43	.43			
		43-80	5-18	1.25-1.40	0.6-2.0	0.15-0.20	0.2-0.9	0.1-0.5	.43	.43			
<b>J16A:</b>													
Friberg, depressional	90	0-23	18-27	1.30-1.60	0.6-2.0	0.20-0.24	0.9-3.2	5.0-10	.28	.28	5	5	56
		23-47	22-35	1.30-1.65	0.6-2.0	0.15-0.19	1.6-5.8	0.5-2.0	.32	.32			
		47-60	18-30	1.35-1.55	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.32	.32			
		60-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind	
									Kw	Kf	T	erodi-bility group	erodi-bility index	
J16A:		In	Pct	g/cc	In/hr	In/in	Pct	Pct						
Kerkhoven-----	10	0-10	20-27	1.30-1.45	0.6-2.0	0.19-0.21	1.0-3.2	5.0-8.0	.24	.24	5	6	48	
		10-35	20-32	1.30-1.45	0.6-2.0	0.19-0.21	1.0-4.8	2.0-5.0	.24	.24				
		35-53	22-32	1.40-1.50	0.6-2.0	0.15-0.19	1.6-4.8	0.5-2.0	.32	.32				
		53-63	18-30	1.35-1.55	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.32	.32				
		63-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
J17A:														
Quam, depressional----	90	0-10	28-35	1.00-1.35	0.2-0.6	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	7	38	
		10-45	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	4.0-10	.28	.28				
		45-80	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	1.0-3.0	.28	.28				
Colvin-----	5	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86	
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43				
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43				
Vallers-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86	
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37				
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37				
J18A:														
Malachy-----	85	0-17	5-18	1.35-1.50	2.0-6.0	0.13-0.18	0.2-0.9	3.0-6.0	.17	.20	4	4L	86	
		17-28	5-18	1.35-1.50	0.6-6.0	0.12-0.19	0.2-0.9	0.5-1.0	.20	.24				
		28-80	2-10	1.45-1.65	6.0-20	0.02-0.10	0.1-0.5	0.0-0.5	.10	.15				
Arveson-----	5	0-10	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20	5	4L	86	
		10-22	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20				
		22-35	10-27	1.40-1.55	0.6-6.0	0.15-0.17	0.5-3.2	1.0-5.0	.24	.20				
		35-80	5-15	1.50-1.65	2.0-20	0.05-0.15	0.2-3.2	0.5-1.0	.17	.15				
Well drained soils----	5	0-14	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86	
		14-28	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20				
		28-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17				
Clontarf-----	5	0-15	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	4	3	86	
		15-25	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20				
		25-80	5-10	1.55-1.70	6.0-20	0.05-0.09	0.2-0.5	0.0-0.5	.15	.15				
J19A:														
Hecla-----	80	0-9	2-10	1.40-1.50	2.0-20	0.10-0.12	0.1-0.5	1.0-2.0	.17	.17	5	2	134	
		9-80	5-10	1.50-1.60	2.0-20	0.06-0.10	0.2-0.5	0.0-1.0	.17	.17				
Clontarf-----	10	0-15	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	4	3	86	
		15-25	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20				
		25-80	5-10	1.55-1.70	6.0-20	0.05-0.09	0.2-0.5	0.0-0.5	.15	.15				

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
<b>J19A:</b>													
Sverdrup-----	5	0-12	10-18	1.35-1.50	2.0-6.0	0.13-0.15	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		12-26	6-18	1.40-1.55	2.0-6.0	0.08-0.14	0.3-0.9	0.5-2.0	.20	.20			
		26-80	0-10	1.50-1.65	6.0-20	0.02-0.06	0.0-0.5	0.0-0.5	.15	.15			
Hamar-----	3	0-20	5-10	1.20-1.30	2.0-20	0.10-0.12	0.2-0.5	1.0-3.0	.17	.17	5	2	134
		20-80	0-7	1.45-1.65	2.0-20	0.06-0.08	0.0-0.3	0.0-0.5	.17	.17			
Malachy-----	2	0-17	5-18	1.35-1.50	2.0-6.0	0.13-0.18	0.2-0.9	3.0-6.0	.17	.20	4	4L	86
		17-28	5-18	1.35-1.50	0.6-6.0	0.12-0.19	0.2-0.9	0.5-1.0	.20	.24			
		28-80	2-10	1.45-1.65	6.0-20	0.02-0.10	0.1-0.5	0.0-0.5	.10	.15			
<b>J20A:</b>													
Clontarf-----	80	0-15	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		15-25	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20			
		25-80	5-10	1.55-1.70	2.0-20	0.06-0.10	0.2-0.5	0.0-0.5	.15	.15			
Hecla-----	10	0-9	2-10	1.40-1.50	2.0-20	0.10-0.12	0.1-0.5	1.0-2.0	.17	.17	5	2	134
		9-80	5-10	1.50-1.60	2.0-20	0.06-0.10	0.2-0.5	0.0-1.0	.17	.17			
Arveson-----	5	0-10	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20	5	4L	86
		10-22	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20			
		22-35	10-27	1.40-1.55	0.6-6.0	0.15-0.17	0.5-3.2	1.0-5.0	.24	.20			
		35-80	5-15	1.50-1.65	2.0-20	0.05-0.15	0.2-3.2	0.5-1.0	.17	.15			
Well drained soils----	5	0-14	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86
		14-28	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		28-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
<b>J21A:</b>													
Hamar-----	85	0-20	5-10	1.20-1.30	2.0-20	0.10-0.12	0.2-0.5	1.0-3.0	.17	.17	5	2	134
		20-80	0-7	1.45-1.65	2.0-20	0.06-0.08	0.0-0.3	0.0-0.5	.17	.17			
Less sandy soils----	8	0-18	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	5	2	134
		18-27	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20			
		27-80	5-10	1.55-1.70	6.0-20	0.05-0.09	0.2-0.5	0.0-0.5	.15	.15			
Arveson-----	4	0-10	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20	5	4L	86
		10-22	10-20	1.25-1.40	2.0-6.0	0.13-0.15	0.5-1.0	5.0-8.0	.20	.20			
		22-35	10-27	1.40-1.55	0.6-6.0	0.15-0.17	0.5-3.2	1.0-5.0	.24	.20			
		35-80	5-15	1.50-1.65	2.0-20	0.05-0.15	0.2-3.2	0.5-1.0	.17	.15			
Hecla-----	3	0-9	2-10	1.40-1.50	2.0-20	0.10-0.12	0.1-0.5	1.0-2.0	.17	.17	5	2	134
		9-80	5-10	1.50-1.60	2.0-20	0.06-0.10	0.2-0.5	0.0-1.0	.17	.17			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi-bility group	erodi-bility index
<b>J22A:</b>													
Renshaw-----	85	0-7	20-26	1.20-1.30	0.6-2.0	0.18-0.20	1.0-2.9	2.0-4.0	.28	.28	3	6	48
		7-15	18-27	1.30-1.45	0.6-6.0	0.11-0.18	0.9-3.2	0.0-1.0	.28	.32			
		15-20	0-5	1.45-1.65	6.0-60	0.03-0.06	0.0-0.2	0.0-0.5	.10	.24			
		20-60	0-5	1.45-1.65	6.0-60	0.03-0.06	0.0-0.2	0.0-0.5	.10	.24			
Fordtown-----	10	0-30	18-25	1.20-1.30	0.6-2.0	0.20-0.22	0.9-2.6	3.0-7.0	.24	.24	4	6	48
		30-36	18-30	1.10-1.30	0.6-2.0	0.13-0.22	0.9-4.2	1.0-4.0	.28	.28			
		36-80	1-10	1.60-1.80	6.0-60	0.02-0.04	0.0-0.5	0.0-0.5	.10	.15			
Arvilla-----	3	0-9	6-18	1.40-1.60	2.0-6.0	0.13-0.15	0.3-0.9	1.0-4.0	.20	.20	3	3	86
		9-14	6-18	1.40-1.60	2.0-6.0	0.11-0.14	0.3-0.9	1.0-2.0	.20	.20			
		14-48	2-10	1.40-1.60	6.0-40	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
		48-80	2-10	1.40-1.60	6.0-40	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
Fordville-----	2	0-6	18-25	1.20-1.30	0.6-2.0	0.20-0.22	0.9-2.6	3.0-7.0	.24	.24	3	6	48
		6-24	18-30	1.10-1.30	0.6-2.0	0.13-0.22	0.9-4.2	1.0-4.0	.28	.28			
		24-80	1-10	1.60-1.80	6.0-60	0.02-0.04	0.0-0.5	0.0-0.5	.10	.15			
<b>J23A:</b>													
Lamoure-----	85	0-27	27-34	1.15-1.25	0.2-2.0	0.19-0.22	3.2-5.4	4.0-8.0	.28	.28	5	4L	86
		27-34	20-34	1.20-1.35	0.2-2.0	0.17-0.20	1.0-5.4	1.0-3.0	.32	.32			
		34-60	20-34	1.20-1.35	0.2-2.0	0.17-0.20	1.0-5.4	0.5-1.0	.43	.43			
Rauville-----	10	0-27	27-35	1.10-1.25	0.2-2.0	0.19-0.22	3.2-5.8	4.0-7.0	.28	.28	5	4L	86
		27-45	20-45	1.10-1.30	0.2-2.0	0.17-0.20	1.0-8.9	1.0-4.0	.32	.32			
		45-60	5-27	1.20-1.35	2.0-6.0	0.08-0.15	0.2-3.2	0.5-3.0	.10	.15			
La Prairie-----	5	0-9	18-27	1.10-1.40	0.6-2.0	0.17-0.22	0.9-3.2	2.0-6.0	.24	.24	5	6	48
		9-38	18-35	1.10-1.50	0.6-2.0	0.17-0.22	0.9-5.8	2.0-6.0	.28	.28			
		38-50	18-35	1.10-1.50	0.6-2.0	0.17-0.22	0.9-5.8	1.0-2.0	.28	.28			
		50-60	18-35	1.30-1.55	0.6-2.0	0.15-0.22	0.9-5.8	0.5-2.0	.28	.28			
<b>J24F:</b>													
Buse-----	85	0-8	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-4.0	.28	.28	5	4L	86
		8-37	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		37-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Darnen-----	10	0-24	18-27	1.25-1.40	0.6-2.0	0.20-0.24	0.9-3.2	4.0-9.0	.28	.28	5	6	48
		24-34	18-30	1.40-1.60	0.6-2.0	0.15-0.19	0.9-4.2	1.0-3.0	.28	.28			
		34-80	18-30	1.55-1.65	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.37	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
<b>J24F:</b>		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
<b>Barnes</b> -----	5	0-14	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	3.0-6.0	.28	.28	5	6	48
		14-18	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.32	.32			
		18-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J25A:</b>													
<b>Rauville</b> -----	90	0-27	27-35	1.10-1.25	0.2-2.0	0.19-0.22	3.2-5.8	4.0-7.0	.28	.28	5	4L	86
		27-45	20-45	1.10-1.30	0.2-2.0	0.17-0.20	1.0-8.9	1.0-4.0	.32	.32			
		45-60	5-27	1.20-1.35	2.0-6.0	0.08-0.15	0.2-3.2	0.5-3.0	.10	.15			
<b>Lamoure</b> -----	10	0-27	27-34	1.15-1.25	0.2-2.0	0.19-0.22	3.2-5.4	4.0-8.0	.28	.28	5	4L	86
		27-34	20-34	1.20-1.35	0.2-2.0	0.17-0.20	1.0-5.4	1.0-3.0	.32	.32			
		34-60	20-34	1.20-1.35	0.2-2.0	0.17-0.20	1.0-5.4	0.5-1.0	.43	.43			
<b>J26B:</b>													
<b>Darnen</b> -----	90	0-24	18-27	1.25-1.40	0.6-2.0	0.20-0.24	0.9-3.2	4.0-9.0	.28	.28	5	6	48
		24-34	18-30	1.40-1.60	0.6-2.0	0.15-0.19	0.9-4.2	1.0-3.0	.28	.28			
		34-80	18-30	1.55-1.65	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.37	.37			
<b>Hokans</b> -----	5	0-15	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	3.0-6.0	.28	.28	5	6	48
		15-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.28	.32			
		22-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>Lakepark</b> -----	5	0-8	20-27	1.30-1.45	0.2-0.6	0.19-0.21	1.0-3.2	5.0-8.0	.24	.24	5	6	48
		8-27	20-35	1.30-1.45	0.2-0.6	0.19-0.21	1.0-5.8	2.0-5.0	.24	.24			
		27-41	22-35	1.40-1.50	0.2-0.6	0.15-0.19	1.6-5.8	0.5-2.0	.32	.32			
		41-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J27A:</b>													
<b>Hantho</b> -----	85	0-12	10-27	1.20-1.40	0.6-2.0	0.22-0.24	0.5-3.2	4.0-6.0	.28	.28	5	5	56
		12-24	10-18	1.30-1.50	0.6-2.0	0.17-0.22	0.5-0.9	2.0-4.0	.28	.28			
		24-65	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
		65-80	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
<b>Eckman</b> -----	5	0-13	10-18	1.20-1.40	0.6-2.0	0.22-0.24	0.5-0.9	3.0-6.0	.32	.32	5	5	56
		13-22	10-18	1.20-1.40	0.6-2.0	0.17-0.22	0.5-0.9	0.5-1.0	.43	.43			
		22-30	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
		30-80	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
<b>Quam</b> -----	5	0-9	28-35	1.00-1.35	0.2-0.6	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	7	38
		9-60	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	4.0-10	.28	.28			
		60-68	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	1.0-3.0	.28	.28			
		68-80	20-35	1.40-1.65	0.2-0.6	0.14-0.19	1.0-5.8	1.0-3.0	.37	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi- bility group	erodi- bility index
<b>J27A:</b>													
Rondell-----	3	0-9	26-34	1.15-1.25	0.2-2.0	0.19-0.22	2.9-5.4	3.0-6.0	.28	.28	5	4L	86
		9-30	19-34	1.15-1.30	0.2-2.0	0.14-0.17	0.9-5.4	0.5-2.0	.43	.43			
		30-80	19-34	1.15-1.30	0.2-2.0	0.14-0.17	0.9-5.4	0.1-0.5	.43	.43			
Tara-----	2	0-19	18-27	1.40-1.50	0.6-2.0	0.20-0.24	0.9-3.2	4.0-8.0	.28	.28	5	6	48
		19-27	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	0.5-2.0	.28	.28			
		27-33	18-30	1.35-1.55	0.6-2.0	0.15-0.19	0.9-4.2	0.1-0.5	.37	.37			
		33-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J28A:</b>													
Vallers, bouldery----	90	0-12	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		12-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		60-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Parnell, depressional	10	0-22	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	7	38
		22-55	35-60	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37			
		55-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43			
<b>J29A:</b>													
Cathro-----	90	0-9	---	0.28-0.45	0.2-6.0	0.45-0.55	---	20-30	---	---	2	2	134
		9-18	---	0.15-0.30	0.2-6.0	0.35-0.45	---	20-30	---	---			
		18-50	16-30	1.50-1.70	0.2-2.0	0.11-0.19	0.5-4.2	4.0-8.0	.20	.24			
		50-80	16-30	1.50-1.70	0.2-2.0	0.11-0.19	0.5-4.2	1.0-5.0	.20	.24			
Colvin-----	5	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
Vallers-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J30A:</b>													
Tara-----	90	0-19	18-27	1.40-1.50	0.6-2.0	0.20-0.24	0.9-3.2	4.0-8.0	.28	.28	5	6	48
		19-27	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	0.5-2.0	.28	.28			
		27-33	18-30	1.35-1.55	0.6-2.0	0.15-0.19	0.9-4.2	0.1-0.5	.37	.37			
		33-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Balaton-----	5	0-13	22-27	1.20-1.35	0.6-2.0	0.20-0.22	1.6-3.2	4.0-8.0	.28	.28	5	4L	86
		13-31	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.5-1.0	.32	.37			
		31-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi- bility group	erodi- bility index
<b>J30A:</b>													
Byrne-----	3	0-8	18-27	1.30-1.45	0.6-2.0	0.20-0.24	0.9-3.2	3.0-6.0	.32	.32	5	6	48
		8-23	18-30	1.35-1.50	0.6-2.0	0.17-0.24	0.9-4.2	0.5-2.0	.32	.32			
		23-28	18-30	1.35-1.50	0.6-2.0	0.17-0.24	0.9-4.2	0.5-2.0	.32	.32			
		28-72	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		72-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Quam-----	2	0-9	28-35	1.00-1.35	0.2-0.6	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	7	38
		9-60	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	4.0-10	.28	.28			
		60-68	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	1.0-3.0	.28	.28			
		68-80	20-35	1.40-1.65	0.2-0.6	0.14-0.19	1.0-5.8	1.0-3.0	.37	.37			
<b>J31B:</b>													
Arvilla-----	45	0-9	6-18	1.40-1.60	2.0-6.0	0.13-0.15	0.3-0.9	1.0-4.0	.20	.20	3	3	86
		9-14	6-18	1.40-1.60	2.0-6.0	0.11-0.14	0.3-0.9	1.0-2.0	.20	.20			
		14-48	2-10	1.40-1.60	6.0-40	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
		48-80	2-10	1.40-1.60	6.0-40	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
Sandberg-----	30	0-8	2-10	1.50-1.65	2.0-40	0.03-0.13	0.1-0.5	1.0-3.0	.15	.20	3	3	86
		8-32	0-5	1.50-1.65	6.0-40	0.02-0.06	0.0-0.2	0.5-1.0	.05	.10			
		32-80	0-5	1.50-1.65	6.0-40	0.02-0.06	0.0-0.2	0.0-0.5	.05	.10			
Renshaw-----	10	0-7	20-26	1.20-1.30	0.6-2.0	0.18-0.20	1.0-2.9	2.0-4.0	.28	.28	3	6	48
		7-15	18-27	1.30-1.45	0.6-6.0	0.11-0.18	0.9-3.2	0.0-1.0	.28	.32			
		15-20	0-5	1.45-1.65	6.0-60	0.03-0.06	0.0-0.2	0.0-0.5	.10	.24			
		20-60	0-5	1.45-1.65	6.0-60	0.03-0.06	0.0-0.2	0.0-0.5	.10	.24			
Sioux-----	10	0-5	14-25	1.20-1.30	0.6-2.0	0.18-0.20	1.0-2.9	1.0-3.0	.28	.28	3	5	56
		5-8	10-20	1.30-1.45	0.6-6.0	0.11-0.18	0.9-3.2	0.0-1.0	.15	.20			
		8-60	0-10	1.45-1.65	6.0-60	0.03-0.06	0.0-0.2	0.0-0.5	.10	.15			
Fordtown-----	5	0-30	18-25	1.20-1.30	0.6-2.0	0.20-0.22	0.9-2.6	3.0-7.0	.24	.24	4	6	48
		30-36	18-30	1.10-1.30	0.6-2.0	0.13-0.22	0.9-4.2	1.0-4.0	.28	.28			
		36-80	1-10	1.60-1.80	6.0-60	0.02-0.04	0.0-0.5	0.0-0.5	.10	.15			
<b>J32A:</b>													
Bigstone-----	80	0-10	28-35	1.00-1.35	0.2-2.0	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	4L	86
		10-30	20-35	1.35-1.50	0.2-2.0	0.16-0.22	1.0-5.8	2.0-4.0	.28	.28			
		30-80	20-30	1.35-1.55	0.2-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Urness-----	10	0-9	18-27	0.25-0.50	0.2-2.0	0.18-0.24	0.9-3.2	10-20	.28	.28	5	4L	86
		9-32	18-35	0.30-1.00	0.2-2.0	0.16-0.22	0.9-5.8	10-20	.28	.28			
		32-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi- bility group	erodi- bility index
J32A:													
Colvin-----	5	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
Vallers-----													
Vallers-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
J33D2:													
Sisseton, eroded-----													
Sisseton, eroded-----	70	0-8	15-20	1.20-1.30	0.6-2.0	0.16-0.18	0.7-1.0	0.5-3.0	.32	.32	5	4L	86
		8-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Heimdal, eroded-----													
Heimdal, eroded-----	10	0-10	10-20	1.30-1.60	0.6-2.0	0.20-0.22	0.5-1.0	2.0-5.0	.24	.24	5	5	56
		10-21	10-18	1.35-1.65	0.6-2.0	0.12-0.19	0.5-0.9	0.5-1.0	.32	.32			
		21-38	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		38-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Esmond, eroded-----													
Esmond, eroded-----	10	0-8	10-18	1.30-1.60	0.6-2.0	0.20-0.22	0.5-0.9	1.0-3.0	.28	.28	5	4L	86
		8-30	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		30-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Heimdal, slightly eroded-----													
Heimdal, slightly eroded-----	5	0-8	10-20	1.30-1.60	0.6-2.0	0.20-0.22	0.5-1.0	3.0-6.0	.24	.24	5	5	56
		8-16	10-18	1.35-1.65	0.6-2.0	0.12-0.19	0.5-0.9	0.5-1.0	.32	.32			
		16-27	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		27-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Emrick-----													
Emrick-----	5	0-15	10-18	1.30-1.60	0.6-2.0	0.20-0.24	0.5-0.9	3.0-8.0	.28	.28	5	5	56
		15-25	10-18	1.30-1.60	0.6-2.0	0.17-0.19	0.5-0.9	1.0-4.0	.28	.28			
		25-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
J34B:													
Byrne-----													
Byrne-----	45	0-10	18-27	1.30-1.45	0.6-2.0	0.24-0.28	0.9-3.2	3.0-6.0	.32	.32	5	6	48
		10-23	18-27	1.35-1.50	0.6-2.0	0.17-0.22	0.9-3.2	0.5-2.0	.32	.32			
		23-28	18-27	1.35-1.50	0.6-2.0	0.17-0.22	0.9-3.2	0.5-2.0	.32	.32			
		28-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Buse-----													
Buse-----	35	0-8	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-4.0	.28	.28	5	4L	86
		8-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
<b>J34B:</b>		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
Buse, eroded-----	10	0-9	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-3.0	.28	.28	5	4L	86
		9-34	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		34-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Hokans-----	5	0-15	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	3.0-6.0	.28	.28	5	6	48
		15-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.28	.32			
		22-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Tara-----	5	0-19	18-27	1.40-1.50	0.6-2.0	0.20-0.24	0.9-3.2	4.0-8.0	.28	.28	5	6	48
		19-27	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	0.5-2.0	.28	.28			
		27-33	18-30	1.35-1.55	0.6-2.0	0.15-0.19	0.9-4.2	0.1-0.5	.37	.37			
		33-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J35B:</b>													
Hokans-----	45	0-15	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	3.0-6.0	.28	.28	5	6	48
		15-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.28	.32			
		22-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Buse-----	30	0-8	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-4.0	.28	.28	5	4L	86
		8-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Barnes-----	10	0-15	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	3.0-6.0	.28	.28	5	6	48
		15-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.32	.32			
		22-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Buse, eroded-----	10	0-9	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-3.0	.28	.28	5	4L	86
		9-34	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		34-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Svea-----	5	0-13	18-26	1.10-1.30	0.6-2.0	0.20-0.24	0.9-2.9	5.0-8.0	.28	.32	5	6	48
		13-17	18-28	1.20-1.50	0.6-2.0	0.17-0.22	0.9-3.5	0.5-2.0	.28	.32			
		17-27	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		27-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J36C2:</b>													
Buse, eroded-----	45	0-9	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-3.0	.28	.28	5	4L	86
		9-34	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		34-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi- bility group	erodi- bility index
J36C2:													
Barnes, eroded-----	20	0-10	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	2.0-5.0	.28	.28	5	6	48
		10-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.32	.32			
		22-42	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		42-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Barnes, slightly eroded-----	10	0-15	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	3.0-6.0	.28	.28	5	6	48
		15-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.32	.32			
		22-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Buse, slightly eroded	10	0-8	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-4.0	.28	.28	5	4L	86
		8-35	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		35-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Darnen-----	10	0-24	18-27	1.25-1.40	0.6-2.0	0.20-0.24	0.9-3.2	4.0-9.0	.28	.28	5	6	48
		24-34	18-30	1.40-1.60	0.6-2.0	0.15-0.19	0.9-4.2	1.0-3.0	.28	.28			
		34-80	18-30	1.55-1.65	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.37	.37			
Langhei, eroded-----	5	0-6	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	0.5-3.0	.32	.32	5	4L	86
		6-15	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		15-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
J37D2:													
Langhei, eroded-----	60	0-6	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	0.5-3.0	.32	.32	5	4L	86
		6-15	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		15-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Barnes, eroded-----	15	0-10	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	2.0-5.0	.28	.28	5	6	48
		10-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.32	.32			
		22-42	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		42-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Buse, eroded-----	10	0-9	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-3.0	.28	.28	5	4L	86
		9-34	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		34-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Darnen-----	10	0-24	18-27	1.25-1.40	0.6-2.0	0.20-0.24	0.9-3.2	4.0-9.0	.28	.28	5	6	48
		24-34	18-30	1.40-1.60	0.6-2.0	0.15-0.19	0.9-4.2	1.0-3.0	.28	.28			
		34-80	18-30	1.55-1.65	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.37	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
J37D2: Barnes, slightly eroded-----	5	0-14	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	3.0-6.0	.28	.28	5	6	48
		14-18	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.32	.32			
		18-37	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		37-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
J38B: Zell-----	41	0-10	10-18	1.15-1.30	0.6-2.0	0.19-0.22	0.5-0.9	1.0-4.0	.32	.32	5	4L	86
		10-43	10-18	1.25-1.40	0.6-2.0	0.15-0.20	0.5-0.9	0.1-1.0	.43	.43			
		43-80	5-18	1.25-1.40	0.6-2.0	0.15-0.20	0.2-0.9	0.1-0.5	.43	.43			
Eckman-----	39	0-15	10-18	1.20-1.40	0.6-2.0	0.22-0.24	0.5-0.9	3.0-6.0	.32	.32	5	5	56
		15-32	10-18	1.20-1.40	0.6-2.0	0.17-0.22	0.5-0.9	0.5-1.0	.43	.43			
		32-42	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
		42-80	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
Zell, eroded-----	10	0-9	10-18	1.15-1.30	0.6-2.0	0.19-0.22	0.5-0.9	1.0-3.0	.32	.32	5	4L	86
		9-28	10-18	1.25-1.40	0.6-2.0	0.15-0.20	0.5-0.9	0.1-1.0	.43	.43			
		28-80	5-18	1.25-1.40	0.6-2.0	0.15-0.20	0.2-0.9	0.1-0.5	.43	.43			
Egeland-----	5	0-8	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86
		8-30	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		30-35	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		35-48	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		48-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
Hantho-----	5	0-12	10-27	1.20-1.40	0.6-2.0	0.22-0.24	0.5-3.2	4.0-6.0	.28	.28	5	5	56
		12-24	10-18	1.30-1.50	0.6-2.0	0.17-0.22	0.5-0.9	2.0-4.0	.28	.28			
		24-65	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
		65-80	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
J38C2: Zell, eroded-----	45	0-9	10-18	1.15-1.30	0.6-2.0	0.19-0.22	0.5-0.9	1.0-3.0	.32	.32	5	4L	86
		9-28	10-18	1.25-1.40	0.6-2.0	0.15-0.20	0.5-0.9	0.1-1.0	.43	.43			
		28-80	5-18	1.25-1.40	0.6-2.0	0.15-0.20	0.2-0.9	0.1-0.5	.43	.43			
Eckman, eroded-----	20	0-8	10-18	1.20-1.40	0.6-2.0	0.22-0.24	0.5-0.9	2.0-5.0	.32	.32	5	5	56
		8-31	10-18	1.20-1.40	0.6-2.0	0.17-0.22	0.5-0.9	0.5-1.0	.43	.43			
		31-50	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
		50-80	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
Zell, slightly eroded	15	0-10	10-18	1.15-1.30	0.6-2.0	0.19-0.22	0.5-0.9	1.0-4.0	.32	.32	5	4L	86
		10-43	10-18	1.25-1.40	0.6-2.0	0.15-0.20	0.5-0.9	0.1-1.0	.43	.43			
		43-80	5-18	1.25-1.40	0.6-2.0	0.15-0.20	0.2-0.9	0.1-0.5	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi-bility	erodi-bility
		In	Pct	g/cc	In/hr	In/in	Pct	Pct				group	index
J38C2:													
Hantho-----	10	0-12	10-27	1.20-1.40	0.6-2.0	0.22-0.24	0.5-3.2	4.0-6.0	.28	.28	5	5	56
		12-24	10-18	1.30-1.50	0.6-2.0	0.17-0.22	0.5-0.9	2.0-4.0	.28	.28			
		24-65	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
		65-80	10-18	1.30-1.55	0.6-2.0	0.17-0.22	0.5-0.9	0.1-1.0	.43	.43			
Eckman, slightly eroded-----	5	0-15	10-18	1.20-1.40	0.6-2.0	0.22-0.24	0.5-0.9	3.0-6.0	.32	.32	5	5	56
		15-32	10-18	1.20-1.40	0.6-2.0	0.17-0.22	0.5-0.9	0.5-1.0	.43	.43			
		32-42	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
		42-80	5-18	1.20-1.40	0.6-2.0	0.20-0.22	0.2-0.9	0.1-0.5	.43	.43			
Egeland-----	5	0-8	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86
		8-30	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		30-35	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		35-48	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		48-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
J39A:													
Udorthents-----	100	---	---	---	---	---	---	---	---	---	-	---	---
J40A:													
Foxlake-----	85	0-23	35-60	1.30-1.40	0.06-0.2	0.18-0.22	5.8-13.7	3.0-5.0	.28	.28	5	4	86
		23-39	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.5-1.0	.43	.43			
		39-80	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.1-0.5	.43	.43			
Audubon-----	5	0-14	40-60	1.30-1.40	0.06-0.2	0.16-0.22	7.3-13.7	3.0-5.0	.28	.28	5	4	86
		14-36	35-60	1.30-1.40	0.06-0.2	0.13-0.19	5.8-13.7	0.5-1.0	.43	.43			
		36-80	35-60	1.40-1.50	0.06-0.2	0.11-0.16	5.8-13.7	0.1-0.5	.43	.43			
Calcareous soils-----	5	0-10	35-60	1.30-1.40	0.06-0.2	0.18-0.22	5.8-13.7	3.0-5.0	.28	.28	5	4	86
		10-25	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.5-1.0	.43	.43			
		25-80	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.1-0.5	.43	.43			
Soils in depressions--	5	0-26	35-60	1.30-1.40	0.06-0.2	0.18-0.22	5.8-13.7	3.0-5.0	.28	.28	5	4	86
		26-33	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.5-1.0	.43	.43			
		33-80	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.1-0.5	.43	.43			
J41A:													
Urness-----	80	0-9	18-27	0.25-0.50	0.2-2.0	0.18-0.24	0.9-3.2	10-20	.28	.28	5	4L	86
		9-32	18-35	0.30-1.00	0.2-2.0	0.16-0.22	0.9-5.8	10-20	.28	.28			
		32-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
<b>J41A:</b>													
Bigstone-----	10	0-10	28-35	1.00-1.35	0.2-2.0	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	4L	86
		10-30	20-35	1.35-1.50	0.2-2.0	0.16-0.22	1.0-5.8	2.0-4.0	.28	.28			
		30-80	20-30	1.35-1.55	0.2-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Colvin-----	5	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
Vallers-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J42C:</b>													
Sandberg-----	60	0-10	2-10	1.50-1.65	2.0-40	0.03-0.13	0.1-0.5	1.0-3.0	.15	.20	3	8	0
		10-22	0-5	1.50-1.65	6.0-40	0.02-0.06	0.0-0.2	0.5-1.0	.05	.10			
		22-80	0-5	1.50-1.65	6.0-40	0.02-0.06	0.0-0.2	0.0-0.5	.05	.10			
Arvilla-----	30	0-9	6-18	1.40-1.60	2.0-6.0	0.13-0.15	0.3-0.9	1.0-4.0	.20	.20	3	3	86
		9-14	6-18	1.40-1.60	2.0-6.0	0.11-0.14	0.3-0.9	1.0-2.0	.20	.20			
		14-48	2-10	1.40-1.60	6.0-40	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
		48-80	2-10	1.40-1.60	6.0-40	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
Everts-----	10	0-38	18-27	1.25-1.40	0.6-2.0	0.20-0.24	0.9-3.2	4.0-9.0	.28	.28	5	6	48
		38-54	18-30	1.40-1.60	0.6-2.0	0.15-0.19	0.9-4.2	1.0-3.0	.28	.28			
		54-80	2-10	1.40-1.60	6.0-40	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
<b>J43A:</b>													
Quam, depressional----	30	0-33	22-27	1.00-1.40	0.6-2.0	0.22-0.24	1.6-3.2	6.0-15	.28	.28	5	8	0
		33-50	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	4.0-10	.28	.28			
		50-60	20-35	1.40-1.65	0.2-0.6	0.14-0.19	1.0-5.8	1.0-3.0	.37	.37			
Cathro-----	30	0-20	---	0.28-0.45	0.2-6.0	0.45-0.55	---	20-30	---	---	2	8	0
		20-34	---	0.15-0.30	0.2-6.0	0.35-0.45	---	20-30	---	---			
		34-40	16-30	1.50-1.70	0.2-2.0	0.11-0.22	0.5-4.2	4.0-8.0	.20	.24			
		40-80	16-30	1.50-1.70	0.2-2.0	0.11-0.22	0.5-4.2	1.0-5.0	.20	.24			
Urness-----	30	0-20	18-27	0.25-0.50	0.2-2.0	0.18-0.24	0.9-3.2	10-20	.28	.28	5	8	0
		20-45	18-35	0.30-1.00	0.2-2.0	0.16-0.22	0.9-5.8	10-20	.28	.28			
		45-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Colvin-----	5	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind	
									Kw	Kf	T	erodi- bility group	erodi- bility index	
<b>J43A:</b>														
Vallars-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86	
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37				
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37				
<b>J44B:</b>														
Esmond-----	45	0-10	10-18	1.30-1.60	0.6-2.0	0.20-0.22	0.5-0.9	1.0-4.0	.28	.28	5	4L	86	
		10-30	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
		30-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
Heimdal-----	40	0-10	10-20	1.30-1.60	0.6-2.0	0.20-0.22	0.5-1.0	3.0-6.0	.24	.24	5	5	56	
		10-22	10-18	1.35-1.65	0.6-2.0	0.12-0.19	0.5-0.9	0.5-1.0	.32	.32				
		22-42	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
		42-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
Esmond, eroded-----	10	0-9	10-18	1.30-1.60	0.6-2.0	0.20-0.22	0.5-0.9	1.0-3.0	.28	.28	5	4L	86	
		9-44	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
		44-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
Emrick-----	5	0-15	10-18	1.30-1.60	0.6-2.0	0.20-0.24	0.5-0.9	3.0-8.0	.28	.28	5	5	56	
		15-25	10-18	1.30-1.60	0.6-2.0	0.17-0.19	0.5-0.9	1.0-4.0	.28	.28				
		25-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
<b>J44C2:</b>														
Esmond, eroded-----	40	0-8	10-18	1.30-1.60	0.6-2.0	0.20-0.22	0.5-0.9	1.0-3.0	.28	.28	5	4L	86	
		8-30	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
		30-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
Heimdal, eroded-----	25	0-7	10-20	1.30-1.60	0.6-2.0	0.20-0.22	0.5-1.0	2.0-5.0	.24	.24	5	5	56	
		7-16	10-18	1.35-1.65	0.6-2.0	0.12-0.19	0.5-0.9	0.5-1.0	.32	.32				
		16-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
Esmond, slightly eroded-----	15	0-10	10-18	1.30-1.60	0.6-2.0	0.20-0.22	0.5-0.9	1.0-4.0	.28	.28	5	4L	86	
		10-30	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
		30-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
Heimdal, slightly eroded-----	10	0-8	10-20	1.30-1.60	0.6-2.0	0.20-0.22	0.5-1.0	3.0-6.0	.24	.24	5	5	56	
		8-16	10-18	1.35-1.65	0.6-2.0	0.12-0.19	0.5-0.9	0.5-1.0	.32	.32				
		16-27	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				
		27-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37				

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
<b>J44C2:</b>		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
<b>Emrick</b> -----	5	0-15	10-18	1.30-1.60	0.6-2.0	0.20-0.24	0.5-0.9	3.0-8.0	.28	.28	5	5	56
		15-25	10-18	1.30-1.60	0.6-2.0	0.17-0.19	0.5-0.9	1.0-4.0	.28	.28			
		25-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
<b>Sisseton, eroded</b> -----	5	0-8	15-20	1.20-1.30	0.6-2.0	0.16-0.18	0.7-1.0	1.0-3.0	.32	.32	5	4L	86
		8-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
<b>J45F:</b>													
<b>Sandberg</b> -----	80	0-12	5-15	1.35-1.55	2.0-4.0	0.13-0.15	0.2-0.8	1.0-4.0	.15	.20	3	3	86
		12-28	0-5	1.50-1.65	6.0-4.0	0.02-0.06	0.0-0.2	0.0-0.5	.05	.10			
		28-80	0-5	1.50-1.65	6.0-4.0	0.02-0.06	0.0-0.2	0.0-0.5	.05	.10			
<b>Everts</b> -----	10	0-38	18-27	1.25-1.40	0.6-2.0	0.20-0.24	0.9-3.2	4.0-9.0	.28	.28	5	6	48
		38-54	18-30	1.40-1.60	0.6-2.0	0.15-0.19	0.9-4.2	1.0-3.0	.28	.28			
		54-80	2-10	1.40-1.60	6.0-4.0	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
<b>Arvilla</b> -----	5	0-9	6-18	1.40-1.60	2.0-6.0	0.13-0.15	0.3-0.9	1.0-4.0	.20	.20	3	3	86
		9-14	6-18	1.40-1.60	2.0-6.0	0.11-0.14	0.3-0.9	1.0-2.0	.20	.20			
		14-48	2-10	1.40-1.60	6.0-4.0	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
		48-80	2-10	1.40-1.60	6.0-4.0	0.02-0.05	0.1-0.5	0.0-0.5	.05	.15			
<b>Sioux</b> -----	5	0-5	14-25	1.20-1.30	0.6-2.0	0.18-0.20	1.0-2.9	1.0-3.0	.28	.28	3	5	56
		5-8	10-20	1.30-1.45	0.6-6.0	0.11-0.18	0.9-3.2	0.0-1.0	.15	.20			
		8-60	0-10	1.45-1.65	6.0-6.0	0.03-0.06	0.0-0.2	0.0-0.5	.10	.15			
<b>J46B:</b>													
<b>Byrne</b> -----	85	0-8	18-27	1.30-1.45	0.6-2.0	0.20-0.24	0.9-3.2	3.0-6.0	.32	.32	5	6	48
		8-23	18-30	1.35-1.50	0.6-2.0	0.17-0.24	0.9-4.2	0.5-2.0	.32	.32			
		23-28	18-30	1.35-1.50	0.6-2.0	0.17-0.24	0.9-4.2	0.5-2.0	.32	.32			
		28-72	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		72-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>Hokans</b> -----	7	0-15	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	3.0-6.0	.28	.28	5	6	48
		15-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.28	.32			
		22-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>Buse</b> -----	5	0-8	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-4.0	.28	.28	5	4L	86
		8-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind	
									Kw	Kf	T	erodi-bility group	erodi-bility index	
<b>J46B:</b>		In	Pct	g/cc	In/hr	In/in	Pct	Pct						
Quam-----	3	0-9	28-35	1.00-1.35	0.2-0.6	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	7	38	
		9-60	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	4.0-10	.28	.28				
		60-68	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	1.0-3.0	.28	.28				
		68-80	20-35	1.40-1.65	0.2-0.6	0.14-0.19	1.0-5.8	1.0-3.0	.37	.37				
<b>J47A:</b>														
Swenoda-----	85	0-17	10-20	1.25-1.35	2.0-6.0	0.11-0.17	0.5-1.0	2.0-7.0	.20	.20	5	3	86	
		17-29	10-18	1.30-1.45	2.0-6.0	0.11-0.17	0.5-0.9	1.0-3.0	.20	.20				
		29-80	20-35	1.35-1.65	0.2-2.0	0.17-0.20	1.0-5.8	0.1-1.0	.43	.43				
Clontarf-----	10	0-15	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	4	3	86	
		15-25	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20				
		25-80	5-10	1.55-1.70	6.0-20	0.05-0.09	0.2-0.5	0.0-0.5	.15	.15				
Egeland-----	5	0-15	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86	
		15-40	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20				
		40-60	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20				
		60-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17				
<b>J48A:</b>														
Bigstone-----	40	0-18	28-35	1.00-1.35	0.2-2.0	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	8	0	
		18-48	20-35	1.35-1.50	0.2-2.0	0.16-0.22	1.0-5.8	2.0-4.0	.28	.28				
		48-80	20-30	1.35-1.55	0.2-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37				
Parnell-----	40	0-22	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	8	0	
		22-55	35-60	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37				
		55-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43				
Colvin-----	10	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86	
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43				
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43				
Vallers-----	10	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86	
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37				
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37				
<b>J49A:</b>														
Lakepark-----	50	0-8	20-27	1.30-1.45	0.2-0.6	0.19-0.21	1.0-3.2	5.0-8.0	.24	.24	5	6	48	
		8-27	20-35	1.30-1.45	0.2-0.6	0.19-0.21	1.0-5.8	2.0-5.0	.24	.24				
		27-41	22-35	1.40-1.50	0.2-0.6	0.15-0.19	1.6-5.8	0.5-2.0	.32	.32				
		41-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37				

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi- bility group	erodi- bility index
<b>J49A:</b>													
Parnell, depressional	35	0-22	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	7	38
		22-55	35-60	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37			
		55-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43			
Emrick-----	8	0-15	10-18	1.30-1.60	0.6-2.0	0.20-0.24	0.5-0.9	3.0-8.0	.28	.28	5	5	56
		15-25	10-18	1.30-1.60	0.6-2.0	0.17-0.19	0.5-0.9	1.0-4.0	.28	.28			
		25-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Vallers-----	7	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J50A:</b>													
Balaton-----	45	0-13	22-27	1.20-1.35	0.6-2.0	0.20-0.22	1.6-3.2	4.0-8.0	.28	.28	5	4L	86
		13-31	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.5-1.0	.32	.37			
		31-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Tara-----	35	0-22	27-30	1.40-1.50	0.6-2.0	0.20-0.24	3.2-4.2	4.0-8.0	.28	.28	5	7	38
		22-38	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	0.5-2.0	.28	.28			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
McIntosh-----	10	0-8	27-39	1.20-1.40	0.2-0.6	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		8-27	18-34	1.30-1.55	0.2-0.6	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		27-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Well drained soils---	5	0-10	22-27	1.20-1.35	0.6-2.0	0.20-0.22	1.6-3.2	4.0-8.0	.28	.28	5	4L	86
		10-27	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.5-1.0	.32	.37			
		27-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Winger-----	5	0-7	27-35	1.20-1.40	0.2-2.0	0.22-0.24	3.2-5.8	4.0-6.0	.28	.28	5	4L	86
		7-22	18-35	1.30-1.50	0.2-2.0	0.22-0.24	0.9-5.8	4.0-6.0	.28	.28			
		22-27	18-35	1.30-1.50	0.2-2.0	0.22-0.24	0.9-5.8	0.5-2.0	.28	.28			
		27-31	18-35	1.30-1.50	0.2-2.0	0.22-0.24	0.9-5.8	0.5-2.0	.28	.28			
		31-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J51A:</b>													
Bearden-----	60	0-16	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		16-37	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		37-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
Quam, depressional---	30	0-28	28-35	1.00-1.35	0.2-0.6	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	7	38
		28-48	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	4.0-10	.28	.28			
		48-80	20-35	1.40-1.65	0.2-0.6	0.14-0.19	1.0-5.8	1.0-3.0	.37	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi-bility	erodi-bility
		In	Pct	g/cc	In/hr	In/in	Pct	Pct				group	index
J51A:													
Rondell-----	7	0-9	26-34	1.15-1.25	0.2-2.0	0.19-0.22	2.9-5.4	3.0-6.0	.28	.28	5	4L	86
		9-30	19-34	1.15-1.30	0.2-2.0	0.14-0.17	0.9-5.4	0.5-2.0	.43	.43			
		30-80	19-34	1.15-1.30	0.2-2.0	0.14-0.17	0.9-5.4	0.1-0.5	.43	.43			
Winger-----	3	0-7	27-35	1.20-1.40	0.2-2.0	0.22-0.24	3.2-5.8	4.0-6.0	.28	.28	5	4L	86
		7-22	18-35	1.30-1.50	0.2-2.0	0.22-0.24	0.9-5.8	4.0-6.0	.28	.28			
		22-27	18-35	1.30-1.50	0.2-2.0	0.22-0.24	0.9-5.8	0.5-2.0	.28	.28			
		27-31	18-35	1.30-1.50	0.2-2.0	0.22-0.24	0.9-5.8	0.5-2.0	.28	.28			
		31-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
J52A:													
Rondell-----	85	0-9	26-34	1.15-1.25	0.2-2.0	0.19-0.22	2.9-5.4	3.0-6.0	.28	.28	5	4L	86
		9-30	19-34	1.15-1.30	0.2-2.0	0.14-0.17	0.9-5.4	0.5-2.0	.43	.43			
		30-80	19-34	1.15-1.30	0.2-2.0	0.14-0.17	0.9-5.4	0.1-0.5	.43	.43			
Zell-----	9	0-10	10-18	1.15-1.30	0.6-2.0	0.19-0.22	0.5-0.9	1.0-4.0	.32	.32	5	4L	86
		10-43	10-18	1.25-1.40	0.6-2.0	0.15-0.20	0.5-0.9	0.1-1.0	.43	.43			
		43-80	5-18	1.25-1.40	0.6-2.0	0.15-0.20	0.2-0.9	0.1-0.5	.43	.43			
Bearden-----	6	0-16	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		16-37	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		37-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
J53A:													
Ortonville-----	85	0-8	10-18	1.30-1.60	0.6-2.0	0.17-0.22	0.5-0.9	4.0-8.0	.28	.28	5	4L	86
		8-24	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		24-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Well drained soils----	10	0-13	10-18	1.30-1.60	0.6-2.0	0.17-0.22	0.5-0.9	4.0-8.0	.28	.28	5	4L	86
		13-38	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		38-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Vallers-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
J54A:													
Marysland, depressional-----	90	0-19	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	6.0-10	.24	.24	4	4L	86
		19-23	18-30	1.35-1.50	0.6-2.0	0.15-0.19	0.9-4.2	0.5-1.0	.28	.28			
		23-80	1-5	1.55-1.65	6.0-20	0.02-0.07	0.0-0.2	0.0-0.5	.15	.15			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
J54A: Marysland soils that are not ponded-----	10	0-9	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	5.0-8.0	.24	.24	4	4L	86
		9-12	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	5.0-8.0	.24	.24			
		12-27	18-30	1.35-1.50	0.6-2.0	0.15-0.19	0.9-4.2	0.5-1.0	.32	.32			
		27-80	1-5	1.55-1.65	6.0-20	0.02-0.07	0.0-0.2	0.0-0.5	.10	.15			
J55A: Sedgeville-----	90	0-8	4-23	1.35-1.45	0.6-2.0	0.17-0.24	0.2-2.0	4.0-12	.28	.28	4	8	86
		8-34	8-17	1.40-1.50	0.6-2.0	0.10-0.22	0.4-0.8	1.0-12	.32	.43			
		34-80	2-5	1.55-1.70	6.0-40	0.04-0.16	0.1-0.2	1.0-12	.10	.15			
Soils that are frequently flooded---	10	0-34	4-23	1.35-1.45	0.6-2.0	0.17-0.24	0.2-2.0	4.0-12	.28	.28	4	8	86
		34-80	2-5	1.55-1.70	6.0-40	0.04-0.16	0.1-0.2	1.0-12	.10	.15			
J56A: Winger-----	40	0-7	27-35	1.20-1.40	0.2-2.0	0.22-0.24	3.2-5.8	4.0-6.0	.28	.28	5	4L	86
		7-22	18-35	1.30-1.50	0.2-2.0	0.22-0.24	0.9-5.8	4.0-6.0	.28	.28			
		22-27	18-35	1.30-1.50	0.2-2.0	0.22-0.24	0.9-5.8	0.5-2.0	.28	.28			
		27-31	18-35	1.30-1.50	0.2-2.0	0.22-0.24	0.9-5.8	0.5-2.0	.28	.28			
		31-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Balaton-----	30	0-13	22-27	1.20-1.35	0.6-2.0	0.20-0.22	1.6-3.2	4.0-8.0	.28	.28	5	4L	86
		13-31	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.5-1.0	.32	.37			
		31-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Parnell, depressional	20	0-22	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	7	38
		22-55	35-60	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37			
		55-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43			
Colvin-----	5	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
Vallers-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
J57A: Balaton-----	85	0-13	22-27	1.20-1.35	0.6-2.0	0.20-0.22	1.6-3.2	4.0-8.0	.28	.28	5	4L	86
		13-31	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.5-1.0	.32	.37			
		31-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi- bility	erodi- bility
		In	Pct	g/cc	In/hr	In/in	Pct	Pct				group	index
<b>J57A:</b>													
Well drained soils----	5	0-10	22-27	1.20-1.35	0.6-2.0	0.20-0.22	1.6-3.2	4.0-8.0	.28	.28	5	4L	86
		10-27	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.5-1.0	.32	.37			
		27-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Tara-----	5	0-19	18-27	1.40-1.50	0.6-2.0	0.20-0.24	0.9-3.2	4.0-8.0	.28	.28	5	6	48
		19-27	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	0.5-2.0	.28	.28			
		27-33	18-30	1.35-1.55	0.6-2.0	0.15-0.19	0.9-4.2	0.1-0.5	.37	.37			
		33-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Vallers-----	5	0-14	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		14-38	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		38-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
<b>J58B:</b>													
Torning-----	45	0-8	10-18	1.45-1.55	2.0-6.0	0.18-0.22	0.5-0.9	0.5-2.0	.32	.32	5	3	86
		8-30	10-18	1.45-1.55	2.0-6.0	0.18-0.22	0.5-0.9	0.5-2.0	.32	.32			
		30-80	5-18	1.45-1.65	2.0-6.0	0.09-0.19	0.2-0.9	0.1-0.5	.32	.32			
Egeland-----	40	0-8	10-18	1.25-1.35	2.0-6.0	0.11-0.17	0.5-0.9	2.0-4.0	.20	.20	5	3	86
		8-30	10-18	1.30-1.45	2.0-6.0	0.09-0.15	0.5-0.9	0.5-2.0	.20	.20			
		30-35	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		35-48	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
		48-80	5-10	1.40-1.65	2.0-6.0	0.08-0.10	0.2-0.5	0.0-0.5	.17	.17			
Clontarf-----	10	0-15	10-18	1.35-1.55	2.0-6.0	0.13-0.18	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		15-25	10-18	1.45-1.60	2.0-6.0	0.12-0.19	0.5-0.9	0.5-1.0	.20	.20			
		25-80	5-10	1.55-1.70	6.0-20	0.05-0.09	0.2-0.5	0.0-0.5	.15	.15			
Sverdrup-----	5	0-12	10-18	1.35-1.50	2.0-6.0	0.13-0.15	0.5-0.9	2.0-4.0	.20	.20	4	3	86
		12-26	6-18	1.40-1.55	2.0-6.0	0.08-0.14	0.3-0.9	0.5-2.0	.20	.20			
		26-80	0-10	1.50-1.65	6.0-20	0.02-0.06	0.0-0.5	0.0-0.5	.15	.15			
<b>J59A:</b>													
Urness, sandy substratum-----	90	0-34	18-27	0.25-0.50	0.2-2.0	0.18-0.24	0.9-3.2	10-20	.28	.28	5	8	0
		34-66	18-35	0.30-1.00	0.2-2.0	0.16-0.22	0.9-5.8	10-20	.28	.28			
		66-80	1-5	1.55-1.65	6.0-20	0.02-0.07	0.0-0.2	0.0-0.5	.15	.15			
Marysland-----	10	0-9	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	5.0-8.0	.24	.24	4	4L	86
		9-12	18-27	1.20-1.30	0.6-2.0	0.17-0.22	0.9-3.2	5.0-8.0	.24	.24			
		12-27	18-30	1.35-1.50	0.6-2.0	0.15-0.19	0.9-4.2	0.5-1.0	.32	.32			
		27-80	1-5	1.55-1.65	6.0-20	0.02-0.07	0.0-0.2	0.0-0.5	.10	.15			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
<b>J60B:</b>													
Hattie-----	46	0-8	40-60	1.30-1.40	0.06-0.2	0.16-0.22	7.3-13.7	2.0-5.0	.28	.28	5	4	86
		8-15	35-60	1.30-1.45	0.06-0.2	0.12-0.16	5.8-13.7	0.5-2.0	.28	.28			
		15-22	35-60	1.30-1.45	0.06-0.2	0.12-0.16	5.8-13.7	0.1-2.0	.28	.28			
		22-80	35-60	1.30-1.45	0.06-0.2	0.12-0.16	5.8-13.7	0.1-2.0	.28	.28			
Audubon-----	44	0-14	40-60	1.30-1.40	0.06-0.2	0.16-0.22	7.3-13.7	3.0-5.0	.28	.28	5	4	86
		14-36	35-60	1.30-1.40	0.06-0.2	0.13-0.19	5.8-13.7	0.5-1.0	.43	.43			
		36-80	35-60	1.40-1.50	0.06-0.2	0.11-0.16	5.8-13.7	0.1-0.5	.43	.43			
Foxlake-----	10	0-23	35-60	1.30-1.40	0.06-0.2	0.18-0.22	5.8-13.7	3.0-5.0	.28	.28	5	4	86
		23-39	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.5-1.0	.43	.43			
		39-80	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.1-0.5	.43	.43			
<b>J60C:</b>													
Hattie-----	60	0-9	40-60	1.30-1.40	0.06-0.2	0.16-0.22	7.3-13.7	2.0-5.0	.28	.28	5	4	86
		9-19	35-60	1.30-1.45	0.06-0.2	0.12-0.16	5.8-13.7	0.5-2.0	.28	.28			
		19-80	35-60	1.30-1.45	0.06-0.2	0.12-0.16	5.8-13.7	0.1-2.0	.28	.28			
Audubon-----	30	0-8	40-60	1.30-1.40	0.06-0.2	0.16-0.22	7.3-13.7	3.0-5.0	.28	.28	5	4	86
		8-34	35-60	1.30-1.40	0.06-0.2	0.13-0.19	5.8-13.7	0.5-1.0	.43	.43			
		34-80	35-60	1.40-1.50	0.06-0.2	0.11-0.16	5.8-13.7	0.1-0.5	.43	.43			
Foxlake-----	10	0-23	35-60	1.30-1.40	0.06-0.2	0.18-0.22	5.8-13.7	3.0-5.0	.28	.28	5	4	86
		23-39	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.5-1.0	.43	.43			
		39-80	35-60	1.40-1.50	0.06-0.2	0.16-0.19	5.8-13.7	0.1-0.5	.43	.43			
<b>J61A:</b>													
Svea, bouldery-----	90	0-10	18-26	1.10-1.30	0.6-2.0	0.20-0.24	0.9-2.9	5.0-8.0	.28	.28	5	6	48
		10-23	18-28	1.20-1.50	0.6-2.0	0.17-0.22	0.9-3.5	0.5-2.0	.28	.32			
		23-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		60-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Vallers, bouldery-----	5	0-12	28-35	1.20-1.35	0.2-0.6	0.18-0.22	3.5-5.8	5.0-8.0	.28	.28	5	4L	86
		12-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		60-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Parnell, depressional	5	0-22	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	7	38
		22-55	35-60	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37			
		55-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43			
<b>J62C:</b>													
Buse, very bouldery---	45	0-8	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-3.0	.28	.28	5	4L	86
		8-24	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		24-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi-bility group	erodi-bility index
<b>J62C:</b>													
Barnes, very bouldery	25	0-15	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	2.0-5.0	.28	.28	5	6	48
		15-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.32	.32			
		22-50	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		50-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Hokans-----	15	0-15	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	3.0-6.0	.28	.28	5	6	48
		15-22	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.28	.32			
		22-40	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		40-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Svea, bouldery-----	10	0-10	18-26	1.10-1.30	0.6-2.0	0.20-0.24	0.9-2.9	5.0-8.0	.28	.28	5	6	48
		10-23	18-28	1.20-1.50	0.6-2.0	0.17-0.22	0.9-3.5	0.5-2.0	.28	.32			
		23-60	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		60-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Darnen-----	5	0-24	18-27	1.25-1.40	0.6-2.0	0.20-0.24	0.9-3.2	4.0-9.0	.28	.28	5	6	48
		24-34	18-30	1.40-1.60	0.6-2.0	0.15-0.19	0.9-4.2	1.0-3.0	.28	.28			
		34-80	18-30	1.55-1.65	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.37	.37			
<b>J62F:</b>													
Buse, very bouldery---	50	0-7	18-27	1.40-1.50	0.6-2.0	0.17-0.22	0.9-3.2	1.0-3.0	.28	.28	5	4L	86
		7-44	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		44-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Barnes, very bouldery	40	0-12	18-27	1.40-1.50	0.6-2.0	0.18-0.24	0.9-3.2	2.0-5.0	.28	.28	5	6	48
		12-19	18-27	1.50-1.60	0.6-2.0	0.15-0.19	0.9-3.2	0.5-1.0	.32	.32			
		19-33	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		33-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Darnen-----	10	0-24	18-27	1.25-1.40	0.6-2.0	0.20-0.24	0.9-3.2	4.0-9.0	.28	.28	5	6	48
		24-34	18-30	1.40-1.60	0.6-2.0	0.15-0.19	0.9-4.2	1.0-3.0	.28	.28			
		34-80	18-30	1.55-1.65	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.37	.37			
<b>J63A:</b>													
Ortonville-----	45	0-8	10-18	1.30-1.60	0.6-2.0	0.17-0.22	0.5-0.9	4.0-8.0	.28	.28	5	4L	86
		8-24	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		24-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Vallers-----	35	0-10	18-27	1.20-1.35	0.6-2.0	0.22-0.24	0.9-3.2	5.0-8.0	.28	.28	5	4L	86
		10-29	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
		29-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
J63A: Parnell, depressional	20	0-22	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	7	38
		22-55	35-60	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37			
		55-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43			
J64A: Quam-----	90	0-9	28-35	1.00-1.35	0.2-0.6	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	7	38
		9-60	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	4.0-10	.28	.28			
		60-68	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	1.0-3.0	.28	.28			
		68-80	20-35	1.40-1.65	0.2-0.6	0.14-0.19	1.0-5.8	1.0-3.0	.37	.37			
Colvin-----	5	0-10	27-39	1.20-1.40	0.2-2.0	0.17-0.23	3.2-7.0	3.0-7.0	.37	.37	5	4L	86
		10-25	18-34	1.30-1.55	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
		25-80	18-34	1.30-1.50	0.2-2.0	0.16-0.22	0.9-5.4	0.1-0.5	.43	.43			
Quam, depressional----	5	0-10	28-35	1.00-1.35	0.2-0.6	0.18-0.22	3.5-5.8	6.0-15	.28	.28	5	7	38
		10-45	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	4.0-10	.28	.28			
		45-80	22-35	1.25-1.45	0.2-0.6	0.16-0.22	1.6-5.8	1.0-3.0	.28	.28			
J65A: Shakopee-----	90	0-9	40-60	1.20-1.30	0.06-0.2	0.11-0.13	7.3-13.7	4.0-8.0	.28	.28	4	4	86
		9-15	35-60	1.20-1.30	0.06-0.2	0.09-0.11	5.8-13.7	2.0-4.0	.28	.28			
		15-38	35-60	1.20-1.30	0.06-0.2	0.10-0.12	5.8-13.7	0.5-2.0	.28	.28			
		38-80	0-10	1.40-1.70	6.0-20	0.05-0.07	0.0-0.5	0.0-0.5	.28	.28			
Soils in depressions--	10	0-9	40-60	1.20-1.30	0.06-0.2	0.11-0.13	7.3-13.7	4.0-8.0	.28	.28	4	4	86
		9-34	35-60	1.20-1.30	0.06-0.2	0.09-0.11	5.8-13.7	2.0-4.0	.28	.28			
		34-45	35-60	1.20-1.30	0.06-0.2	0.10-0.12	5.8-13.7	0.5-2.0	.28	.28			
		45-80	0-10	1.40-1.70	6.0-20	0.05-0.07	0.0-0.5	0.0-0.5	.28	.28			
J66A: Emrick-----	85	0-15	10-18	1.30-1.60	0.6-2.0	0.20-0.24	0.5-0.9	3.0-8.0	.28	.28	5	5	56
		15-25	10-18	1.30-1.60	0.6-2.0	0.17-0.19	0.5-0.9	1.0-4.0	.28	.28			
		25-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Lakepark-----	10	0-8	20-27	1.30-1.45	0.2-0.6	0.19-0.21	1.0-3.2	5.0-8.0	.24	.24	5	6	48
		8-27	20-35	1.30-1.45	0.2-0.6	0.19-0.21	1.0-5.8	2.0-5.0	.24	.24			
		27-41	22-35	1.40-1.50	0.2-0.6	0.15-0.19	1.6-5.8	0.5-2.0	.32	.32			
		41-80	20-30	1.35-1.55	0.6-2.0	0.15-0.19	1.0-4.2	0.1-0.5	.32	.37			
Heimdal-----	5	0-10	10-20	1.30-1.60	0.6-2.0	0.20-0.22	0.5-1.0	3.0-6.0	.24	.24	5	5	56
		10-22	10-18	1.35-1.65	0.6-2.0	0.12-0.19	0.5-0.9	0.5-1.0	.32	.32			
		22-42	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		42-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind	Wind
									Kw	Kf	T	erodi- bility group	erodi- bility index
<b>J67A:</b>													
Fordtown-----	85	0-30	18-25	1.20-1.30	0.6-2.0	0.20-0.22	0.9-2.6	3.0-7.0	.24	.24	4	6	48
		30-36	18-30	1.10-1.30	0.6-2.0	0.13-0.22	0.9-4.2	1.0-4.0	.28	.28			
		36-80	1-10	1.60-1.80	6.0-60	0.02-0.04	0.0-0.5	0.0-0.5	.10	.15			
Renshaw-----	8	0-7	20-26	1.20-1.30	0.6-2.0	0.18-0.20	1.0-2.9	2.0-4.0	.28	.28	3	6	48
		7-15	18-27	1.30-1.45	0.6-6.0	0.11-0.18	0.9-3.2	0.0-1.0	.28	.32			
		15-20	0-5	1.45-1.65	6.0-60	0.03-0.06	0.0-0.2	0.0-0.5	.10	.24			
		20-60	0-5	1.45-1.65	6.0-60	0.03-0.06	0.0-0.2	0.0-0.5	.10	.24			
Spottswood-----	7	0-10	18-25	1.20-1.30	0.6-2.0	0.20-0.22	0.9-2.6	3.0-7.0	.24	.24	4	6	48
		10-26	18-30	1.10-1.30	0.6-2.0	0.13-0.22	0.9-4.2	1.0-4.0	.28	.28			
		26-80	1-10	1.60-1.80	6.0-60	0.02-0.04	0.0-0.5	0.0-0.5	.10	.15			
<b>J68A:</b>													
Kerkhoven-----	55	0-10	20-27	1.30-1.45	0.6-2.0	0.19-0.21	1.0-3.2	5.0-8.0	.24	.24	5	6	48
		10-35	20-32	1.30-1.45	0.6-2.0	0.19-0.21	1.0-4.8	2.0-5.0	.24	.24			
		35-53	22-32	1.40-1.50	0.6-2.0	0.15-0.19	1.6-4.8	0.5-2.0	.32	.32			
		53-63	18-30	1.35-1.55	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.32	.32			
		63-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Friberg, depressional	35	0-23	18-27	1.30-1.60	0.6-2.0	0.20-0.24	0.9-3.2	5.0-10	.28	.28	5	5	56
		23-47	22-35	1.30-1.65	0.6-2.0	0.15-0.19	1.6-5.8	0.5-2.0	.32	.32			
		47-60	18-30	1.50-1.70	0.6-2.0	0.14-0.19	0.9-4.2	0.1-0.5	.32	.32			
		60-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
Emrick-----	10	0-15	10-18	1.30-1.60	0.6-2.0	0.20-0.24	0.5-0.9	3.0-8.0	.28	.28	5	5	56
		15-25	10-18	1.30-1.60	0.6-2.0	0.17-0.19	0.5-0.9	1.0-4.0	.28	.28			
		25-36	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
		36-80	12-20	1.40-1.60	0.6-2.0	0.13-0.18	0.6-1.0	0.1-0.5	.32	.37			
<b>L33B:</b>													
Kandiyohi-----	85	0-10	40-50	1.30-1.50	0.06-0.6	0.16-0.22	7.3-10.5	4.0-7.0	.28	.28	5	4	86
		10-23	35-60	1.40-1.60	0.06-0.6	0.14-0.19	5.8-13.7	0.5-2.0	.32	.32			
		23-64	30-55	1.50-1.70	0.06-0.2	0.13-0.19	4.2-12.1	0.1-1.0	.37	.37			
		64-80	30-55	1.60-1.80	0.06-0.2	0.11-0.15	4.2-12.1	0.1-1.0	.37	.37			
Cosmos-----	10	0-15	35-50	1.40-1.50	0.06-0.2	0.16-0.22	5.8-10.5	4.0-8.0	.28	.28	5	4	86
		15-30	35-60	1.40-1.60	0.06-0.2	0.14-0.19	5.8-13.7	0.5-2.0	.32	.32			
		30-36	35-60	1.40-1.60	0.06-0.2	0.14-0.19	5.8-13.7	0.5-2.0	.32	.32			
		36-80	30-55	1.60-1.80	0.06-0.2	0.11-0.15	4.2-12.1	0.1-0.5	.32	.32			
Okoboji-----	5	0-32	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	7	38
		32-56	35-45	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37			
		56-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
<b>L34A:</b>		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
Cosmos-----	85	0-15	35-50	1.40-1.50	0.06-0.2	0.16-0.22	5.8-10.5	4.0-8.0	.28	.28	5	4	86
		15-30	35-60	1.40-1.60	0.06-0.2	0.14-0.19	5.8-13.7	0.5-2.0	.32	.32			
		30-36	35-60	1.40-1.60	0.06-0.2	0.14-0.19	5.8-13.7	0.5-2.0	.32	.32			
		36-80	30-55	1.60-1.80	0.06-0.2	0.11-0.15	4.2-12.1	0.1-0.5	.32	.32			
Kandiyohi-----	10	0-10	40-50	1.30-1.50	0.06-0.6	0.16-0.22	7.3-10.5	4.0-7.0	.28	.28	5	4	86
		10-23	35-60	1.40-1.60	0.06-0.6	0.14-0.19	5.8-13.7	0.5-2.0	.32	.32			
		23-64	30-55	1.50-1.70	0.06-0.2	0.13-0.19	4.2-12.1	0.1-1.0	.37	.37			
		64-80	30-55	1.60-1.80	0.06-0.2	0.11-0.15	4.2-12.1	0.1-1.0	.37	.37			
Okoboji-----	5	0-32	27-40	1.20-1.30	0.2-0.6	0.18-0.22	3.2-7.3	6.0-10	.37	.37	5	7	38
		32-56	35-45	1.20-1.30	0.06-0.2	0.13-0.19	5.8-13.7	1.0-5.0	.37	.37			
		56-80	35-45	1.20-1.40	0.06-0.2	0.11-0.19	5.8-8.9	0.1-0.5	.43	.43			
<b>M-W:</b>													
Water, miscellaneous--	100	---	---	---	---	---	---	---	---	---	-	---	---
<b>W:</b>													
Water-----	100	---	---	---	---	---	---	---	---	---	-	---	---

Table 16.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and component name	Pct. of map unit	Depth In	Cation-	Soil	Calcium	Gypsum
			exchange capacity	reaction pH	carbon- ate Pct	Pct
GP:			meq/100 g			
Pits, gravel-----	80	---	---	---	---	---
Udipsamments-----	20	---	---	---	---	---
J1A:						
Parnell, depressional	90	0-22	25-40	6.1-7.8	0	0
		22-55	19-38	6.1-7.8	0-3	0-1
		55-80	16-24	6.6-8.4	0-10	0-1
Colvin-----	5	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1
Vallers-----	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
J2A:						
La Prairie-----	90	0-9	15-30	6.6-8.4	0-3	0-1
		9-38	15-30	6.6-8.4	0-10	0-1
		38-50	12-25	6.6-8.4	0-10	0-1
		50-60	12-25	6.6-8.4	10-30	0-1
Lamoure-----	10	0-27	22-32	7.4-8.4	0-10	0-1
		27-34	14-28	7.4-8.4	9-20	0-1
		34-60	12-25	7.4-8.4	9-20	0-1
J3A:						
Arveson-----	80	0-10	19-23	7.4-8.4	5-20	0-1
		10-22	19-23	7.4-8.4	15-30	0-1
		22-35	7.0-18	7.4-8.4	15-30	0-1
		35-80	5.0-8.0	7.4-8.4	10-20	0-1
Marysland-----	10	0-9	22-32	7.4-8.4	10-35	0-1
		9-12	22-32	7.4-8.4	15-35	0-1
		12-27	10-18	7.4-8.4	15-35	0-1
		27-80	1.0-4.0	7.4-8.4	10-30	0-1
Marysland, depressional-----	5	0-19	18-36	7.4-8.4	10-35	0-1
		19-23	10-18	7.4-8.4	15-35	0-1
		23-80	1.0-4.0	7.4-8.4	10-30	0-1
Malachy-----	5	0-17	8.0-23	7.4-8.4	1-10	0-1
		17-28	3.0-13	7.4-8.4	5-20	0-1
		28-80	1.0-7.0	7.4-8.4	5-20	0-1
J4A:						
Rockwell-----	90	0-9	15-30	7.4-8.4	10-20	0-1
		9-16	5.0-15	7.9-8.4	15-30	0-1
		16-25	5.0-15	7.9-8.4	10-20	0-1
		25-45	10-20	7.4-8.4	10-25	0-1
		45-80	5.0-15	7.4-7.8	10-20	0-1
Arveson-----	10	0-10	19-23	7.4-8.4	5-20	0-1
		10-22	19-23	7.4-8.4	15-30	0-1
		22-35	7.0-18	7.4-8.4	15-30	0-1
		35-80	5.0-8.0	7.4-8.4	10-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J5A:</b>						
Fossum-----	85	0-13	10-17	7.4-8.4	5-15	0-1
		13-21	1.0-10	7.4-8.4	5-15	0-1
		21-80	1.0-3.0	7.4-8.4	5-15	0-1
Arveson-----	10	0-10	19-23	7.4-8.4	5-20	0-1
		10-22	19-23	7.4-8.4	15-30	0-1
		22-35	7.0-18	7.4-8.4	15-30	0-1
		35-80	5.0-8.0	7.4-8.4	10-20	0-1
Fossum, depressional	3	0-8	10-17	7.4-8.4	5-15	0-1
		8-14	1.0-10	7.4-8.4	5-15	0-1
		14-80	1.0-3.0	7.4-8.4	5-15	0-1
Hecla-----	2	0-9	4.0-8.0	6.1-7.3	0	0
		9-80	3.0-7.0	6.6-8.4	0-5	0-1
<b>J6A:</b>						
McDonaldsville-----	90	0-17	30-40	6.1-7.3	0	0
		17-36	25-40	6.1-8.4	0	0
		36-80	0.0-6.0	7.9-8.4	5-10	0-1
Somewhat poorly drained soils-----	10	0-32	30-40	6.1-7.3	0	0
		32-46	25-40	6.1-8.4	0	0
		46-80	0.0-6.0	7.9-8.4	5-10	0-1
<b>J7A:</b>						
Sverdrup-----	85	0-12	9.0-17	6.1-7.3	0	0
		12-26	4.0-13	6.1-7.8	0	0
		26-80	0.0-6.0	7.4-8.4	2-10	0-1
Arveson-----	5	0-10	19-23	7.4-8.4	5-20	0-1
		10-22	19-23	7.4-8.4	15-30	0-1
		22-35	7.0-18	7.4-8.4	15-30	0-1
		35-80	5.0-8.0	7.4-8.4	10-20	0-1
Clontarf-----	5	0-15	9.0-17	6.1-7.3	0	0
		15-25	6.0-11	6.1-7.8	0	0
		25-80	3.0-6.0	6.6-7.8	0-15	0-1
Egeland-----	5	0-8	10-20	6.1-7.3	0	0
		8-30	6.0-20	6.1-7.8	0	0
		30-35	3.0-10	6.1-7.8	0	0
		35-48	3.0-10	6.6-8.4	10-20	0-1
		48-80	3.0-10	6.6-8.4	5-15	0-1
<b>J7B:</b>						
Sverdrup-----	90	0-12	9.0-17	6.1-7.3	0	0
		12-26	4.0-13	6.1-7.8	0	0
		26-80	0.0-6.0	7.4-8.4	2-10	0-1
Clontarf-----	5	0-15	9.0-17	6.1-7.3	0	0
		15-25	6.0-11	6.1-7.8	0	0
		25-80	3.0-6.0	6.6-7.8	0-15	0-1
Egeland-----	5	0-8	10-20	6.1-7.3	0	0
		8-30	6.0-20	6.1-7.8	0	0
		30-35	3.0-10	6.1-7.8	0	0
		35-48	3.0-10	6.6-8.4	10-20	0-1
		48-80	3.0-10	6.6-8.4	5-15	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J8A:</b>						
Egeland-----	80	0-15	10-20	6.1-7.3	0	0
		15-40	6.0-20	6.1-7.8	0	0
		40-60	6.0-20	7.4-8.4	10-25	0-1
		60-80	3.0-10	6.6-8.4	5-20	0-1
Clontarf-----	10	0-15	9.0-17	6.1-7.3	0	0
		15-25	6.0-11	6.1-7.8	0	0
		25-80	3.0-6.0	6.6-7.8	0-15	0-1
Sverdrup-----	5	0-12	9.0-17	6.1-7.3	0	0
		12-26	4.0-13	6.1-7.8	0	0
		26-80	0.0-6.0	7.4-8.4	2-10	0-1
Arveson-----	3	0-10	19-23	7.4-8.4	5-20	0-1
		10-22	19-23	7.4-8.4	15-30	0-1
		22-35	7.0-18	7.4-8.4	15-30	0-1
		35-80	5.0-8.0	7.4-8.4	10-20	0-1
Hantho-----	2	0-12	14-34	6.6-7.8	0	0
		12-24	10-22	6.6-7.8	0	0
		24-65	6.0-16	7.4-8.4	15-20	0-1
		65-80	6.0-16	7.4-8.4	5-15	0-1
<b>J8B:</b>						
Egeland-----	80	0-9	10-20	6.1-7.3	0	0
		9-26	6.0-20	6.1-7.8	0	0
		26-39	3.0-10	6.6-8.4	10-20	0-1
		39-80	3.0-10	6.6-8.4	5-15	0-1
Clontarf-----	8	0-15	9.0-17	6.1-7.3	0	0
		15-25	6.0-11	6.1-7.8	0	0
		25-80	3.0-6.0	6.6-7.8	0-15	0-1
Sverdrup-----	5	0-12	9.0-17	6.1-7.3	0	0
		12-26	4.0-13	6.1-7.8	0	0
		26-80	0.0-6.0	7.4-8.4	2-10	0-1
Torning-----	3	0-8	6.0-20	7.4-7.8	10-25	0-1
		8-30	6.0-20	7.4-8.4	15-30	0-1
		30-80	4.0-10	7.4-8.4	10-20	0-1
Eckman-----	2	0-13	10-20	6.6-7.3	0	0
		13-22	6.0-12	6.6-7.8	0	0
		22-30	5.0-10	7.4-8.4	15-30	0-1
		30-80	5.0-10	7.4-8.4	10-20	0-1
Egeland, eroded-----	2	0-7	8.0-20	6.1-7.3	0	0
		7-20	6.0-20	6.1-7.8	0	0
		20-39	4.0-10	6.6-8.4	10-20	0-1
		39-80	4.0-10	6.6-8.4	5-15	0-1
<b>J9A:</b>						
Estelline-----	90	0-6	17-30	6.1-7.3	0	0
		6-27	10-20	6.1-7.8	0	0
		27-37	10-15	7.4-8.4	3-15	0-1
		37-60	1.0-2.0	7.4-8.4	3-15	0-1
Soils that have a thin surface layer--	10	0-10	17-30	6.1-7.3	0	0
		10-15	10-20	6.1-7.8	0	0
		15-26	10-15	7.4-8.4	3-15	0-1
		26-80	1.0-2.0	7.4-8.4	3-15	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
J10A:						
Sinai-----	90	0-12	30-40	6.1-7.3	0-5	0
		12-23	25-40	6.6-7.8	0-5	0
		23-42	25-40	7.4-8.4	15-25	0-1
		42-60	20-40	7.4-8.4	5-15	0-1
Fulda-----	10	0-13	30-40	6.1-7.3	0-5	0
		13-33	25-40	6.6-7.8	0-5	0
		33-40	25-40	7.4-8.4	15-25	0-1
		40-60	20-40	7.4-8.4	5-15	0-1
J10B:						
Sinai-----	90	0-12	30-40	6.1-7.3	0-5	0
		12-23	25-40	6.6-7.8	0-5	0
		23-42	25-40	7.4-8.4	5-15	0-1
		42-60	20-40	7.4-8.4	5-15	0-1
Fulda-----	10	0-13	30-40	6.1-7.3	0-5	0
		13-33	25-40	6.6-7.8	0-5	0
		33-40	25-40	7.4-8.4	15-25	0-1
		40-60	20-40	7.4-8.4	5-15	0-1
J11A:						
Vallers-----	85	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
Parnell, depressional	10	0-22	25-40	6.1-7.8	0	0
		22-55	19-38	6.1-7.8	0-3	0-1
		55-80	16-24	6.6-8.4	0-10	0-1
Balaton-----	5	0-13	17-32	7.4-8.4	5-15	0-1
		13-31	10-20	7.4-8.4	15-30	0-1
		31-80	10-20	7.4-8.4	10-20	0-1
J12A:						
Marysland-----	85	0-9	22-32	7.4-8.4	10-35	0-1
		9-12	22-32	7.4-8.4	15-35	0-1
		12-27	10-18	7.4-8.4	15-35	0-1
		27-80	1.0-4.0	7.4-8.4	10-30	0-1
Arveson-----	10	0-10	19-23	7.4-8.4	5-20	0-1
		10-22	19-23	7.4-8.4	15-30	0-1
		22-35	7.0-18	7.4-8.4	15-30	0-1
		35-80	5.0-8.0	7.4-8.4	10-20	0-1
Marysland, depressional	3	0-19	18-36	7.4-8.4	10-35	0-1
		19-23	10-18	7.4-8.4	15-35	0-1
		23-80	1.0-4.0	7.4-8.4	10-30	0-1
Malachy-----	2	0-17	8.0-23	7.4-8.4	1-10	0-1
		17-28	3.0-13	7.4-8.4	5-20	0-1
		28-80	1.0-7.0	7.4-8.4	5-20	0-1
J13A:						
Oldham-----	90	0-28	25-40	6.6-7.8	0-5	0-1
		28-80	15-30	7.4-8.4	5-10	0-1
Colvin-----	5	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum
		In	meq/100 g	pH	Pct	Pct
J13A: Vallars-----	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
J14F: Esmond-----	85	0-8	8.0-23	7.4-8.4	2-20	0-1
		8-27	8.0-12	7.4-8.4	15-30	0-1
		27-80	8.0-12	7.4-8.4	10-20	0-1
Emrick-----	10	0-15	15-30	6.6-7.3	0	0
		15-25	10-25	6.6-7.3	0	0
		25-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
Heimdal-----	5	0-8	10-24	6.1-7.3	0	0
		8-12	8.0-12	6.1-7.3	0	0
		12-40	8.0-12	7.4-8.4	15-30	0-1
		40-80	8.0-12	7.4-8.4	10-20	0-1
J15B: Eckman-----	80	0-13	10-20	6.6-7.3	0	0
		13-22	6.0-12	6.6-7.8	0	0
		22-30	5.0-10	7.4-8.4	15-30	0-1
		30-80	5.0-10	7.4-8.4	10-20	0-1
Eckman, eroded-----	5	0-13	10-20	6.6-7.3	0	0
		13-22	6.0-12	6.6-7.8	0	0
		22-30	5.0-10	7.4-8.4	15-30	0-1
		30-80	5.0-10	7.4-8.4	10-20	0-1
Egeland-----	5	0-9	10-20	5.6-7.3	0	0
		9-26	6.0-20	6.1-7.8	0	0
		26-39	3.0-10	6.6-8.4	10-20	0-1
		39-80	3.0-10	6.6-8.4	5-15	0-1
Hantho-----	5	0-12	14-34	6.6-7.8	0	0
		12-24	10-22	6.6-7.8	0	0
		24-65	6.0-16	7.4-8.4	15-20	0-1
		65-80	6.0-16	7.4-8.4	5-15	0-1
Zell-----	5	0-10	10-25	6.6-8.4	0-5	0-1
		10-43	6.0-20	7.4-8.4	15-30	0-1
		43-80	5.0-20	7.4-8.4	10-25	0-1
J16A: Friberg, depressional	90	0-23	15-28	6.1-7.8	0	0
		23-47	12-22	6.1-7.3	0	0
		47-60	11-19	7.4-8.4	15-30	0-1
		60-80	8.0-12	7.4-8.4	10-20	0-1
Kerkhoven-----	10	0-10	20-30	6.1-7.8	0	0
		10-35	14-28	6.1-7.8	0	0
		35-53	12-22	6.6-7.8	0	0
		53-63	11-19	7.4-8.4	15-30	0-1
		63-80	8.0-12	7.4-8.4	10-20	0-1
J17A: Quam, depressional---	90	0-10	25-45	6.6-7.8	0	0
		10-45	20-40	6.6-7.8	0-15	0-1
		45-80	15-40	6.6-7.8	0-15	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J17A:</b>						
Colvin-----	5	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1
<b>Vallers-----</b>						
	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
<b>J18A:</b>						
<b>Malachy-----</b>						
	85	0-17	8.0-23	7.4-8.4	1-10	0-1
		17-28	3.0-13	7.4-8.4	5-20	0-1
		28-80	1.0-7.0	7.4-8.4	5-20	0-1
<b>Arveson-----</b>						
	5	0-10	19-23	7.4-8.4	5-20	0-1
		10-22	19-23	7.4-8.4	15-30	0-1
		22-35	7.0-18	7.4-8.4	15-30	0-1
		35-80	5.0-8.0	7.4-8.4	10-20	0-1
<b>Well drained soils---</b>						
	5	0-14	10-20	6.1-7.3	0	0
		14-28	6.0-20	6.1-7.8	0	0
		28-80	3.0-10	6.6-8.4	5-15	0-1
<b>Clontarf-----</b>						
	5	0-15	9.0-17	6.1-7.3	0	0
		15-25	6.0-11	6.1-7.8	0	0
		25-80	3.0-6.0	6.6-7.8	0-15	0-1
<b>J19A:</b>						
<b>Hecla-----</b>						
	80	0-9	4.0-8.0	6.1-7.3	0	0
		9-80	3.0-7.0	6.6-8.4	0-5	0-1
<b>Clontarf-----</b>						
	10	0-15	9.0-17	6.1-7.3	0	0
		15-25	6.0-11	6.1-7.8	0	0
		25-80	3.0-6.0	6.6-7.8	0-15	0-1
<b>Sverdrup-----</b>						
	5	0-12	9.0-17	6.1-7.3	0	0
		12-26	4.0-13	6.1-7.8	0	0
		26-80	0.0-6.0	7.4-8.4	2-10	0-1
<b>Hamar-----</b>						
	3	0-20	7.0-12	6.1-7.8	0	0
		20-80	2.0-9.0	7.4-8.4	0-2	0-1
<b>Malachy-----</b>						
	2	0-17	8.0-23	7.4-8.4	1-10	0-1
		17-28	3.0-13	7.4-8.4	5-20	0-1
		28-80	1.0-7.0	7.4-8.4	5-20	0-1
<b>J20A:</b>						
<b>Clontarf-----</b>						
	80	0-15	9.0-17	6.1-7.3	0	0
		15-25	6.0-11	6.1-7.8	0	0
		25-80	3.0-6.0	6.6-7.8	0-15	0-1
<b>Hecla-----</b>						
	10	0-9	4.0-8.0	6.1-7.3	0	0
		9-80	3.0-7.0	6.6-8.4	0-5	0-1
<b>Arveson-----</b>						
	5	0-10	19-23	7.4-8.4	5-20	0-1
		10-22	19-23	7.4-8.4	15-30	0-1
		22-35	7.0-18	7.4-8.4	15-30	0-1
		35-80	5.0-8.0	7.4-8.4	10-20	0-1
<b>Well drained soils---</b>						
	5	0-14	10-20	6.1-7.3	0	0
		14-28	6.0-20	6.1-7.8	0	0
		28-80	3.0-10	6.6-8.4	5-15	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J21A:</b>						
Hamar-----	85	0-20	7.0-12	6.1-7.8	0	0
		20-80	2.0-9.0	7.4-8.4	0-2	0-1
Less sandy soils-----	8	0-18	9.0-17	6.1-7.3	0	0
		18-27	6.0-11	6.1-7.8	0-15	0-1
		27-80	3.0-6.0	6.6-7.8	0-15	0-1
Arveson-----	4	0-10	19-23	7.4-8.4	5-20	0-1
		10-22	19-23	7.4-8.4	15-30	0-1
		22-35	7.0-18	7.4-8.4	15-30	0-1
		35-80	5.0-8.0	7.4-8.4	10-20	0-1
Hecla-----	3	0-9	4.0-8.0	6.1-7.3	0	0
		9-80	3.0-7.0	6.6-8.4	0-5	0-1
<b>J22A:</b>						
Renshaw-----	85	0-7	15-25	6.1-7.8	0	0
		7-15	5.0-15	6.6-8.4	0	0
		15-20	1.0-10	6.6-8.4	5-15	0-1
		20-60	1.0-10	6.6-8.4	1-10	0-1
Fordtown-----	10	0-30	20-27	6.1-7.3	0	0
		30-36	15-25	6.1-7.8	0	0
		36-80	1.0-10	7.4-8.4	2-20	0-1
Arvilla-----	3	0-9	5.0-20	6.1-8.4	0	0
		9-14	5.0-15	6.6-8.4	0	0
		14-48	1.0-5.0	7.4-8.4	2-10	0-1
		48-80	1.0-5.0	7.4-8.4	1-5	0-1
Fordville-----	2	0-6	20-27	6.1-7.3	0	0
		6-24	15-25	6.1-7.8	0	0
		24-80	1.0-10	7.4-8.4	2-20	0-1
<b>J23A:</b>						
Lamoure-----	85	0-27	22-32	7.4-8.4	0-10	0-1
		27-34	14-28	7.4-8.4	9-20	0-1
		34-60	12-25	7.4-8.4	9-20	0-1
Rauville-----	10	0-27	25-31	7.4-8.4	5-15	0-1
		27-45	20-28	7.4-8.4	10-20	0-1
		45-60	10-23	6.6-8.4	4-20	0-1
La Prairie-----	5	0-9	15-30	6.6-8.4	0-3	0-1
		9-38	15-30	6.6-8.4	0-10	0-1
		38-50	12-25	6.6-8.4	0-10	0-1
		50-60	12-25	6.6-8.4	10-30	0-1
<b>J24F:</b>						
Buse-----	85	0-8	13-18	7.4-8.4	1-25	0-1
		8-37	10-20	7.4-8.4	15-30	0-1
		37-80	10-20	7.4-8.4	10-20	0-1
Darnen-----	10	0-24	17-32	6.6-7.8	0	0
		24-34	11-21	6.1-7.8	0	0
		34-80	9.0-16	7.4-8.4	0-10	0-1
Barnes-----	5	0-14	11-26	6.1-7.3	0	0
		14-18	8.0-18	6.1-7.3	0	0
		18-40	10-20	7.4-8.4	15-30	0-1
		40-80	10-20	7.4-8.4	10-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J25A:</b>						
Rauville-----	90	0-27	25-31	7.4-8.4	5-15	0-1
		27-45	20-28	7.4-8.4	10-20	0-1
		45-60	10-23	6.6-8.4	4-20	0-1
<b>Lamoure-----</b>						
	10	0-27	22-32	7.4-8.4	0-10	0-1
		27-34	14-28	7.4-8.4	9-20	0-1
		34-60	12-25	7.4-8.4	9-20	0-1
<b>J26B:</b>						
<b>Darnen-----</b>						
	90	0-24	17-32	6.6-7.8	0	0
		24-34	11-21	6.1-7.8	0	0
		34-80	9.0-16	7.4-8.4	0-10	0-1
<b>Hokans-----</b>						
	5	0-15	11-26	6.1-7.3	0	0
		15-22	8.0-18	6.1-7.3	0	0
		22-40	10-20	7.4-8.4	15-30	0-1
		40-80	10-20	7.4-8.4	10-20	0-1
<b>Lakepark-----</b>						
	5	0-8	20-30	6.1-7.8	0	0
		8-27	14-28	6.1-7.8	0	0
		27-41	12-22	6.6-7.8	0	0
		41-80	10-20	7.4-8.4	10-20	0-1
<b>J27A:</b>						
<b>Hantho-----</b>						
	85	0-12	14-34	6.6-7.8	0	0
		12-24	10-22	6.6-7.8	0	0
		24-65	6.0-16	7.4-8.4	15-20	0-1
		65-80	6.0-16	7.4-8.4	5-15	0-1
<b>Eckman-----</b>						
	5	0-13	10-20	6.6-7.3	0	0
		13-22	6.0-12	6.6-7.8	0	0
		22-30	5.0-10	7.4-8.4	15-30	0-1
		30-80	5.0-10	7.4-8.4	10-20	0-1
<b>Quam-----</b>						
	5	0-9	25-45	6.6-7.8	0	0
		9-60	20-40	6.6-7.8	0-15	0-1
		60-68	15-40	6.6-7.8	0-15	0-1
		68-80	12-25	7.4-8.4	5-20	0-1
<b>Rondell-----</b>						
	3	0-9	18-30	6.6-8.4	1-5	0-1
		9-30	10-18	7.4-9.0	15-45	0-1
		30-80	10-16	7.4-8.4	10-30	0-1
<b>Tara-----</b>						
	2	0-19	15-32	6.1-7.3	0	0
		19-27	8.0-20	6.6-7.8	0	0
		27-33	7.0-18	7.4-8.4	15-25	0-1
		33-80	10-20	7.4-8.4	10-20	0-1
<b>J28A:</b>						
<b>Vallers, bouldery----</b>						
	90	0-12	15-30	7.4-8.4	12-25	0-1
		12-60	10-20	7.4-8.4	15-30	0-1
		60-80	10-20	7.4-8.4	10-20	0-1
<b>Parnell, depressional</b>						
	10	0-22	25-40	6.1-7.8	0	0
		22-55	19-38	6.1-7.8	0-3	0-1
		55-80	16-24	6.6-8.4	0-10	0-1
<b>J29A:</b>						
<b>Cathro-----</b>						
	90	0-9	40-120	6.1-7.8	0	0
		9-18	40-120	6.1-7.8	0	0
		18-50	5.0-25	6.6-8.4	5-25	0-1
		50-80	5.0-25	6.6-8.4	5-25	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J29A:</b>						
Colvin-----	5	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1
Vallers-----	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
<b>J30A:</b>						
Tara-----	90	0-19	15-32	6.1-7.3	0	0
		19-27	8.0-20	6.6-7.8	0	0
		27-33	7.0-18	7.4-8.4	15-25	0-1
		33-80	10-20	7.4-8.4	10-20	0-1
Balaton-----	5	0-13	17-32	7.4-8.4	5-15	0-1
		13-31	10-20	7.4-8.4	15-30	0-1
		31-80	10-20	7.4-8.4	10-20	0-1
Byrne-----	3	0-8	17-26	6.1-7.3	0	0
		8-23	9.0-18	6.1-7.3	0	0
		23-28	9.0-18	7.4-8.4	10-20	0-1
		28-72	10-20	7.4-8.4	15-30	0-1
		72-80	10-20	7.4-8.4	10-20	0-1
Quam-----	2	0-9	25-45	6.6-7.8	0	0
		9-60	20-40	6.6-7.8	0-15	0-1
		60-68	15-40	6.6-7.8	0-15	0-1
		68-80	12-25	7.4-8.4	5-20	0-1
<b>J31B:</b>						
Arvilla-----	45	0-9	5.0-20	6.1-8.4	0	0
		9-14	5.0-15	6.6-8.4	0	0
		14-48	1.0-5.0	7.4-8.4	2-10	0-1
		48-80	1.0-5.0	7.4-8.4	1-5	0-1
Sandberg-----	30	0-8	2.0-12	6.1-7.8	0-5	0-1
		8-32	1.0-6.0	7.4-8.4	10-25	0-1
		32-80	1.0-4.0	7.4-8.4	5-10	0-1
Renshaw-----	10	0-7	15-25	6.1-7.8	0	0
		7-15	5.0-15	6.6-8.4	0	0
		15-20	1.0-10	6.6-8.4	5-15	0-1
		20-60	1.0-10	6.6-8.4	1-10	0-1
Sioux-----	10	0-5	10-20	6.6-8.4	0-1	0-1
		5-8	1.0-10	7.4-8.4	0-1	0-1
		8-60	1.0-10	7.4-8.4	1-10	0-1
Fordtown-----	5	0-30	20-27	6.1-7.3	0	0
		30-36	15-25	6.1-7.8	0	0
		36-80	1.0-10	7.4-8.4	2-20	0-1
<b>J32A:</b>						
Bigstone-----	80	0-10	26-48	7.4-8.4	5-20	0-1
		10-30	14-26	7.4-8.4	5-30	0-1
		30-80	10-20	7.4-8.4	10-20	0-1
Urness-----	10	0-9	40-50	7.4-8.4	5-25	0-1
		9-32	40-50	7.4-8.4	5-25	0-1
		32-80	10-20	7.4-8.4	10-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J32A:</b>						
Colvin-----	5	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1
Vallers-----	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
<b>J33D2:</b>						
Sisseton, eroded----	70	0-8	8.0-20	7.4-8.4	0-5	0-1
		8-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
Heimdal, eroded----	10	0-10	10-24	6.1-7.3	0	0
		10-21	8.0-12	6.1-7.3	0	0
		21-38	8.0-12	7.4-8.4	15-30	0-1
		38-80	8.0-12	7.4-8.4	10-20	0-1
Esmond, eroded-----	10	0-8	8.0-23	7.4-8.4	0-5	0-1
		8-30	8.0-12	7.4-8.4	15-30	0-1
		30-80	8.0-12	7.4-8.4	10-20	0-1
Heimdal, slightly eroded-----	5	0-8	10-24	6.1-7.3	0	0
		8-16	8.0-12	6.1-7.3	0	0
		16-27	8.0-12	7.4-8.4	15-30	0-1
		27-80	8.0-12	7.4-8.4	10-20	0-1
Emrick-----	5	0-15	15-30	6.6-7.3	0	0
		15-25	10-25	6.6-7.3	0	0
		25-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
<b>J34B:</b>						
Byrne-----	45	0-10	17-26	6.1-7.3	0	0
		10-23	9.0-15	6.1-7.3	0	0
		23-28	9.0-15	7.4-8.4	15-25	0-1
		28-40	10-20	7.4-8.4	15-30	0-1
		40-80	10-20	7.4-8.4	10-20	0-1
Buse-----	35	0-8	13-18	7.4-8.4	1-25	0-1
		8-40	10-20	7.4-8.4	15-30	0-1
		40-60	10-20	7.4-8.4	10-20	0-1
Buse, eroded-----	10	0-9	13-18	7.4-8.4	1-25	0-1
		9-34	10-20	7.4-8.4	15-30	0-1
		34-80	10-20	7.4-8.4	10-20	0-1
Hokans-----	5	0-15	11-26	6.1-7.3	0	0
		15-22	8.0-18	6.1-7.3	0	0
		22-40	10-20	7.4-8.4	15-30	0-1
		40-80	10-20	7.4-8.4	10-20	0-1
Tara-----	5	0-19	15-32	6.1-7.3	0	0
		19-27	8.0-20	6.6-7.8	0	0
		27-33	7.0-18	7.4-8.4	15-25	0-1
		33-80	10-20	7.4-8.4	10-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J35B:</b>						
Hokans-----	45	0-15	11-26	6.1-7.3	0	0
		15-22	8.0-18	6.1-7.3	0	0
		22-40	10-20	7.4-8.4	15-30	0-1
		40-80	10-20	7.4-8.4	10-20	0-1
Buse-----	30	0-8	13-18	7.4-8.4	1-25	0-1
		8-40	10-20	7.4-8.4	15-30	0-1
		40-60	10-20	7.4-8.4	10-20	0-1
Barnes-----	10	0-15	11-26	6.1-7.3	0	0
		15-22	8.0-18	6.1-7.3	0	0
		22-40	10-20	7.4-8.4	15-30	0-1
		40-80	10-20	7.4-8.4	10-20	0-1
Buse, eroded-----	10	0-9	13-18	7.4-8.4	1-25	0-1
		9-34	10-20	7.4-8.4	15-30	0-1
		34-80	10-20	7.4-8.4	10-20	0-1
Svea-----	5	0-13	11-26	6.1-7.3	0	0
		13-17	8.0-18	6.6-7.3	0	0
		17-27	10-20	7.4-8.4	15-30	0-1
		27-80	10-20	7.4-8.4	10-20	0-1
<b>J36C2:</b>						
Buse, eroded-----	45	0-9	13-18	7.4-8.4	1-25	0-1
		9-34	10-20	7.4-8.4	15-30	0-1
		34-80	10-20	7.4-8.4	10-20	0-1
Barnes, eroded-----	20	0-10	11-26	6.1-7.3	0	0
		10-22	8.0-18	6.1-7.3	0	0
		22-42	10-20	7.4-8.4	15-30	0-1
		42-80	10-20	7.4-8.4	10-20	0-1
Barnes, slightly eroded-----	10	0-15	11-26	6.1-7.3	0	0
		15-22	8.0-18	6.1-7.3	0	0
		22-40	10-20	7.4-8.4	15-30	0-1
		40-80	10-20	7.4-8.4	10-20	0-1
Buse, slightly eroded	10	0-8	13-18	7.4-8.4	1-25	0-1
		8-35	10-20	7.4-8.4	15-30	0-1
		35-60	10-20	7.4-8.4	10-20	0-1
Darnen-----	10	0-24	17-32	6.6-7.8	0	0
		24-34	11-21	6.1-7.8	0	0
		34-80	9.0-16	7.4-8.4	0-10	0-1
Langhei, eroded-----	5	0-6	10-25	6.6-8.4	0-30	0-1
		6-15	10-20	7.4-8.4	15-30	0-1
		15-60	10-20	7.4-8.4	10-20	0-1
<b>J37D2:</b>						
Langhei, eroded-----	60	0-6	10-25	6.6-8.4	0-30	0-1
		6-15	10-20	7.4-8.4	15-30	0-1
		15-60	10-20	7.4-8.4	10-20	0-1
Barnes, eroded-----	15	0-10	11-26	6.1-7.3	0	0
		10-22	8.0-18	6.1-7.3	0	0
		22-42	10-20	7.4-8.4	15-30	0-1
		42-80	10-20	7.4-8.4	10-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J37D2:</b>						
Buse, eroded-----	10	0-9	13-18	7.4-8.4	1-25	0-1
		9-34	10-20	7.4-8.4	15-30	0-1
		34-80	10-20	7.4-8.4	10-20	0-1
Darnen-----	10	0-24	17-32	6.6-7.8	0	0
		24-34	11-21	6.1-7.8	0	0
		34-80	9.0-16	7.4-8.4	0-10	0-1
Barnes, slightly eroded-----	5	0-14	11-26	6.1-7.3	0	0
		14-18	8.0-18	6.1-7.3	0	0
		18-37	10-20	7.4-8.4	15-30	0-1
		37-80	10-20	7.4-8.4	10-20	0-1
<b>J38B:</b>						
Zell-----	41	0-10	10-25	6.6-8.4	0-5	0-1
		10-43	6.0-20	7.4-8.4	15-30	0-1
		43-80	5.0-20	7.4-8.4	10-25	0-1
Eckman-----	39	0-15	10-20	6.6-7.3	0	0
		15-32	6.0-12	6.6-7.8	0	0
		32-42	5.0-10	7.4-8.4	15-30	0-1
		42-80	5.0-10	7.4-8.4	10-20	0-1
Zell, eroded-----	10	0-9	10-25	6.6-8.4	0-5	0-1
		9-28	6.0-20	7.4-8.4	15-30	0-1
		28-80	5.0-20	7.4-9.0	10-25	0-1
Egeland-----	5	0-8	10-20	6.1-7.3	0	0
		8-30	6.0-20	6.1-7.8	0	0
		30-35	3.0-10	6.1-7.8	0	0
		35-48	3.0-10	6.6-8.4	10-20	0-1
		48-80	3.0-10	6.6-8.4	5-15	0-1
Hantho-----	5	0-12	14-34	6.6-7.8	0	0
		12-24	10-22	6.6-7.8	0	0
		24-65	6.0-16	7.4-8.4	15-20	0-1
		65-80	6.0-16	7.4-8.4	5-15	0-1
<b>J38C2:</b>						
Zell, eroded-----	45	0-9	10-25	6.6-8.4	0-5	0-1
		9-28	6.0-20	7.4-8.4	15-30	0-1
		28-80	5.0-20	7.4-9.0	10-25	0-1
Eckman, eroded-----	20	0-8	10-20	6.6-7.3	0	0
		8-31	6.0-12	6.6-7.8	0	0
		31-50	5.0-10	7.4-8.4	15-30	0-1
		50-80	5.0-10	7.4-8.4	10-20	0-1
Zell, slightly eroded	15	0-10	10-25	6.6-8.4	0-5	0-1
		10-43	6.0-20	7.4-8.4	15-30	0-1
		43-80	5.0-20	7.4-8.4	10-25	0-1
Hantho-----	10	0-12	14-34	6.6-7.8	0	0
		12-24	10-22	6.6-7.8	0	0
		24-65	6.0-16	7.4-8.4	15-20	0-1
		65-80	6.0-16	7.4-8.4	5-15	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
J38C2: Eckman, slightly eroded-----	5	0-15	10-20	6.6-7.3	0	0
		15-32	6.0-12	6.6-7.8	0	0
		32-42	5.0-10	7.4-8.4	15-30	0-1
		42-80	5.0-10	7.4-8.4	10-20	0-1
Egeland-----	5	0-8	10-20	6.1-7.3	0	0
		8-30	6.0-20	6.1-7.8	0	0
		30-35	3.0-10	6.1-7.8	0	0
		35-48	3.0-10	6.6-8.4	10-20	0-1
		48-80	3.0-10	6.6-8.4	5-15	0-1
J39A: Udorthents-----	100	---	---	---	---	---
J40A: Foxlake-----	85	0-23	25-50	6.6-7.8	0	0
		23-39	18-40	7.4-8.4	20-30	0-1
		39-80	18-40	7.4-8.4	10-20	0-1
Audubon-----	5	0-14	25-45	6.6-7.8	0	0
		14-36	19-37	7.4-8.4	15-30	0-1
		36-80	18-35	7.4-8.4	10-25	0-1
Calcareous soils-----	5	0-10	25-50	7.4-8.4	5-20	0-1
		10-25	18-40	7.4-8.4	20-30	0-1
		25-80	18-40	7.4-8.4	10-20	0-1
Soils in depressions	5	0-26	25-50	6.6-7.8	0	0
		26-33	18-40	7.4-8.4	20-30	0-1
		33-80	18-40	7.4-8.4	10-20	0-1
J41A: Urness-----	80	0-9	40-50	7.4-8.4	5-25	0-1
		9-32	40-50	7.4-8.4	5-25	0-1
		32-80	10-20	7.4-8.4	10-20	0-1
Bigstone-----	10	0-10	26-48	7.4-8.4	5-20	0-1
		10-30	14-26	7.4-8.4	5-30	0-1
		30-80	10-20	7.4-8.4	10-20	0-1
Colvin-----	5	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1
Vallers-----	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
J42C: Sandberg-----	60	0-10	2.0-12	6.1-7.8	0-5	0-1
		10-22	1.0-6.0	7.4-8.4	10-25	0-1
		22-80	1.0-4.0	7.4-8.4	5-10	0-1
Arvilla-----	30	0-9	5.0-20	6.1-8.4	0	0
		9-14	5.0-15	6.6-8.4	0	0
		14-48	1.0-5.0	7.4-8.4	2-10	0-1
		48-80	1.0-5.0	7.4-8.4	1-5	0-1
Everts-----	10	0-38	17-32	6.6-7.8	0	0
		38-54	11-21	6.1-7.8	0	0
		54-80	1.0-5.0	7.4-8.4	1-5	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J43A:</b>						
Quam, depressional---	30	0-33	20-40	6.6-7.8	0	0
		33-50	20-40	6.6-7.8	0-15	0-1
		50-60	12-25	7.4-8.4	5-20	0-1
Cathro-----	30	0-20	40-120	6.1-7.8	0	0
		20-34	40-120	6.1-7.8	0	0
		34-40	2.0-25	6.1-8.4	5-25	0-1
		40-80	2.0-20	6.1-8.4	5-25	0-1
Urness-----	30	0-20	40-50	7.4-8.4	5-30	0-1
		20-45	40-50	7.4-8.4	5-30	0-1
		45-60	10-20	7.4-8.4	10-20	0-1
Colvin-----	5	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1
Vallers-----	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
<b>J44B:</b>						
Esmond-----	45	0-10	8.0-23	7.4-8.4	0-5	0-1
		10-30	8.0-12	7.4-8.4	15-30	0-1
		30-80	8.0-12	7.4-8.4	10-20	0-1
Heimdal-----	40	0-10	10-24	6.1-7.3	0	0
		10-22	8.0-12	6.1-7.3	0	0
		22-42	8.0-12	7.4-8.4	15-30	0-1
		42-80	8.0-12	7.4-8.4	10-20	0-1
Esmond, eroded-----	10	0-9	8.0-23	7.4-8.4	0-5	0-1
		9-44	8.0-12	7.4-8.4	15-30	0-1
		44-80	8.0-12	7.4-8.4	10-20	0-1
Emrick-----	5	0-15	15-30	6.6-7.3	0	0
		15-25	10-25	6.6-7.3	0	0
		25-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
<b>J44C2:</b>						
Esmond, eroded-----	40	0-8	8.0-23	7.4-8.4	0-5	0-1
		8-30	8.0-12	7.4-8.4	15-30	0-1
		30-80	8.0-12	7.4-8.4	10-20	0-1
Heimdal, eroded-----	25	0-7	10-24	6.1-7.3	0	0
		7-16	8.0-12	6.1-7.3	0	0
		16-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
Esmond, slightly eroded-----	15	0-10	8.0-23	7.4-8.4	0-5	0-1
		10-30	8.0-12	7.4-8.4	15-30	0-1
		30-80	8.0-12	7.4-8.4	10-20	0-1
Heimdal, slightly eroded-----	10	0-8	10-24	6.1-7.3	0	0
		8-16	8.0-12	6.1-7.3	0	0
		16-27	8.0-12	7.4-8.4	15-30	0-1
		27-80	8.0-12	7.4-8.4	10-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J44C2:</b>						
Emrick-----	5	0-15	15-30	6.6-7.3	0	0
		15-25	10-25	6.6-7.3	0	0
		25-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
Sisseton, eroded----	5	0-8	8.0-20	7.4-8.4	0-5	0-1
		8-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
<b>J45F:</b>						
Sandberg-----	80	0-12	4.0-16	5.6-7.8	0-5	0-1
		12-28	1.0-4.0	7.4-8.4	10-25	0-1
		28-80	1.0-4.0	7.4-8.4	5-10	0-1
Everts-----	10	0-38	17-32	6.6-7.8	0	0
		38-54	11-21	6.1-7.8	0	0
		54-80	1.0-5.0	7.4-8.4	1-5	0-1
Arvilla-----	5	0-9	5.0-20	6.1-8.4	0	0
		9-14	5.0-15	6.6-8.4	0	0
		14-48	1.0-5.0	7.4-8.4	2-10	0-1
		48-80	1.0-5.0	7.4-8.4	1-5	0-1
Sioux-----	5	0-5	10-20	6.6-8.4	0-1	0-1
		5-8	1.0-10	7.4-8.4	0-1	0-1
		8-60	1.0-10	7.4-8.4	1-10	0-1
<b>J46B:</b>						
Byrne-----	85	0-8	17-26	6.1-7.3	0	0
		8-23	9.0-18	6.1-7.3	0	0
		23-28	9.0-18	7.4-8.4	10-20	0-1
		28-72	10-20	7.4-8.4	15-30	0-1
		72-80	10-20	7.4-8.4	10-20	0-1
Hokans-----	7	0-15	11-26	6.1-7.3	0	0
		15-22	8.0-18	6.1-7.3	0	0
		22-40	10-20	7.4-8.4	15-30	0-1
		40-80	10-20	7.4-8.4	10-20	0-1
Buse-----	5	0-8	13-18	7.4-8.4	1-25	0-1
		8-40	10-20	7.4-8.4	15-30	0-1
		40-60	10-20	7.4-8.4	10-20	0-1
Quam-----	3	0-9	25-45	6.6-7.8	0	0
		9-60	20-40	6.6-7.8	0-15	0-1
		60-68	15-40	6.6-7.8	0-15	0-1
		68-80	12-25	7.4-8.4	5-20	0-1
<b>J47A:</b>						
Svenoda-----	85	0-17	10-23	6.1-7.3	0	0
		17-29	8.0-14	6.6-7.8	0	0
		29-80	11-19	7.4-8.4	10-30	0-1
Clontarf-----	10	0-15	9.0-17	6.1-7.3	0	0
		15-25	6.0-11	6.1-7.8	0	0
		25-80	3.0-6.0	6.6-7.8	0-15	0-1
Egeland-----	5	0-15	10-20	6.1-7.3	0	0
		15-40	6.0-20	6.1-7.8	0	0
		40-60	6.0-20	7.4-8.4	10-25	0-1
		60-80	3.0-10	6.6-8.4	5-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J48A:</b>						
Bigstone-----	40	0-18	26-48	7.4-8.4	5-20	0-1
		18-48	14-26	7.4-8.4	5-30	0-1
		48-80	10-20	7.4-8.4	10-20	0-1
Parnell-----	40	0-22	25-40	6.1-7.8	0	0
		22-55	19-35	6.1-7.8	0	0
		55-80	16-24	6.6-8.4	0-10	0-1
Colvin-----	10	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1
Vallers-----	10	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
<b>J49A:</b>						
Lakepark-----	50	0-8	20-30	6.1-7.8	0	0
		8-27	14-28	6.1-7.8	0	0
		27-41	12-22	6.6-7.8	0	0
		41-80	10-20	7.4-8.4	10-20	0-1
Parnell, depressional	35	0-22	25-40	6.1-7.8	0	0
		22-55	19-38	6.1-7.8	0-3	0-1
		55-80	16-24	6.6-8.4	0-10	0-1
Emrick-----	8	0-15	15-30	6.6-7.3	0	0
		15-25	10-25	6.6-7.3	0	0
		25-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
Vallers-----	7	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
<b>J50A:</b>						
Balaton-----	45	0-13	17-32	7.4-8.4	5-15	0-1
		13-31	10-20	7.4-8.4	15-30	0-1
		31-80	10-20	7.4-8.4	10-20	0-1
Tara-----	35	0-22	19-34	6.1-7.3	0	0
		22-38	8.0-20	6.6-7.8	0	0
		38-80	10-20	7.4-8.4	10-20	0-1
McIntosh-----	10	0-8	15-30	7.4-8.4	1-10	0-1
		8-27	10-20	7.4-8.4	15-35	0-1
		27-60	10-20	7.4-8.4	10-20	0-1
Well drained soils---	5	0-10	17-32	7.4-8.4	5-15	0-1
		10-27	10-20	7.4-8.4	15-30	0-1
		27-80	10-20	7.4-8.4	10-20	0-1
Winger-----	5	0-7	22-30	7.4-8.4	5-20	0-1
		7-22	10-25	7.4-8.4	15-35	0-1
		22-27	10-22	7.4-8.4	15-35	0-1
		27-31	10-22	7.4-8.4	10-20	0-1
		31-80	10-20	7.4-8.4	10-20	0-1
<b>J51A:</b>						
Bearden-----	60	0-16	15-30	7.4-8.4	1-10	0-1
		16-37	10-20	7.4-8.4	15-35	0-1
		37-80	10-20	7.4-8.4	10-25	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
J51A:						
Quam, depressional---	30	0-28	25-45	6.6-7.8	0	0
		28-48	20-40	6.6-7.8	0	0
		48-80	12-25	7.4-8.4	5-20	0-1
Rondell-----	7	0-9	18-30	6.6-8.4	1-5	0-1
		9-30	10-18	7.4-9.0	15-45	0-1
		30-80	10-16	7.4-8.4	10-30	0-1
Winger-----	3	0-7	22-30	7.4-8.4	5-20	0-1
		7-22	10-25	7.4-8.4	15-35	0-1
		22-27	10-22	7.4-8.4	15-35	0-1
		27-31	10-22	7.4-8.4	10-20	0-1
		31-80	10-20	7.4-8.4	10-20	0-1
J52A:						
Rondell-----	85	0-9	18-30	6.6-8.4	1-5	0-1
		9-30	10-18	7.4-9.0	15-45	0-1
		30-80	10-16	7.4-8.4	10-30	0-1
Zell-----	9	0-10	10-25	6.6-8.4	0-5	0-1
		10-43	6.0-20	7.4-8.4	15-30	0-1
		43-80	5.0-20	7.4-8.4	10-25	0-1
Bearden-----	6	0-16	15-30	7.4-8.4	1-10	0-1
		16-37	10-20	7.4-8.4	15-35	0-1
		37-80	10-20	7.4-8.4	10-25	0-1
J53A:						
Ortonville-----	85	0-8	13-25	7.4-8.4	5-15	0-1
		8-24	8.0-12	7.4-8.4	15-30	0-1
		24-80	8.0-12	7.4-8.4	10-20	0-1
Well drained soils---	10	0-13	13-25	7.4-8.4	5-15	0-1
		13-38	8.0-20	7.4-8.4	15-30	0-1
		38-80	8.0-20	7.4-8.4	10-20	0-1
Vallers-----	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
J54A:						
Marysland, depressional-----	90	0-19	18-36	7.4-8.4	10-35	0-1
		19-23	10-18	7.4-8.4	15-35	0-1
		23-80	1.0-4.0	7.4-8.4	10-30	0-1
Marysland soils that are not ponded-----	10	0-9	22-32	7.4-8.4	10-35	0-1
		9-12	22-32	7.4-8.4	15-35	0-1
		12-27	10-18	7.4-8.4	15-35	0-1
		27-80	1.0-4.0	7.4-8.4	10-30	0-1
J55A:						
Sedgeville-----	90	0-8	10-35	6.1-7.8	0-20	0-1
		8-34	5.0-20	6.1-7.8	0-20	0-1
		34-80	5.0-18	7.9-8.4	5-20	0-1
Soils that are frequently flooded--	10	0-34	10-35	6.1-7.8	0-20	0-1
		34-80	5.0-18	7.9-8.4	5-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J56A:</b>						
Winger-----	40	0-7	22-30	7.4-8.4	5-20	0-1
		7-22	10-25	7.4-8.4	15-35	0-1
		22-27	10-22	7.4-8.4	15-35	0-1
		27-31	10-22	7.4-8.4	10-20	0-1
		31-80	10-20	7.4-8.4	10-20	0-1
Balaton-----	30	0-13	17-32	7.4-8.4	5-15	0-1
		13-31	10-20	7.4-8.4	15-30	0-1
		31-80	10-20	7.4-8.4	10-20	0-1
Parnell, depressional	20	0-22	25-40	6.1-7.8	0	0
		22-55	19-38	6.1-7.8	0-3	0-1
		55-80	16-24	6.6-8.4	0-10	0-1
Colvin-----	5	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1
Vallers-----	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
<b>J57A:</b>						
Balaton-----	85	0-13	17-32	7.4-8.4	5-15	0-1
		13-31	10-20	7.4-8.4	15-30	0-1
		31-80	10-20	7.4-8.4	10-20	0-1
Well drained soils---	5	0-10	17-32	7.4-8.4	5-15	0-1
		10-27	10-20	7.4-8.4	15-30	0-1
		27-80	10-20	7.4-8.4	10-20	0-1
Tara-----	5	0-19	15-32	6.1-7.3	0	0
		19-27	8.0-20	6.6-7.8	0	0
		27-33	7.0-18	7.4-8.4	15-25	0-1
		33-80	10-20	7.4-8.4	10-20	0-1
Vallers-----	5	0-14	15-35	7.4-8.4	12-25	0-1
		14-38	10-20	7.4-8.4	15-30	0-1
		38-80	10-20	7.4-8.4	10-20	0-1
<b>J58B:</b>						
Torning-----	45	0-8	6.0-20	7.4-7.8	10-25	0-1
		8-30	6.0-20	7.4-8.4	15-30	0-1
		30-80	4.0-10	7.4-8.4	10-20	0-1
Egeland-----	40	0-8	10-20	6.1-7.3	0	0
		8-30	6.0-20	6.1-7.8	0	0
		30-35	3.0-10	6.1-7.8	0	0
		35-48	3.0-10	6.6-8.4	10-20	0-1
		48-80	3.0-10	6.6-8.4	5-15	0-1
Clontarf-----	10	0-15	9.0-17	6.1-7.3	0	0
		15-25	6.0-11	6.1-7.8	0	0
		25-80	3.0-6.0	6.6-7.8	0-15	0-1
Sverdrup-----	5	0-12	9.0-17	6.1-7.3	0	0
		12-26	4.0-13	6.1-7.8	0	0
		26-80	0.0-6.0	7.4-8.4	2-10	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum
		In	meq/100 g	pH	Pct	Pct
J59A: Urness, sandy substratum-----	90	0-34	40-50	7.4-8.4	5-30	0-1
		34-66	40-50	7.4-8.4	5-30	0-1
		66-80	1.0-4.0	7.9-8.4	10-30	0-1
Marysland-----	10	0-9	22-32	7.4-8.4	10-35	0-1
		9-12	22-32	7.4-8.4	15-35	0-1
		12-27	10-18	7.4-8.4	15-35	0-1
		27-80	1.0-4.0	7.4-8.4	10-30	0-1
J60B: Hattie-----	46	0-8	23-52	7.4-8.4	5-30	0-1
		8-15	24-52	7.4-8.4	5-30	0-1
		15-22	24-52	7.4-8.4	15-35	0-1
		22-80	24-52	7.4-8.4	5-30	0-1
Audubon-----	44	0-14	25-45	6.6-7.8	0	0
		14-36	19-37	7.4-8.4	15-30	0-1
		36-80	18-35	7.4-8.4	10-25	0-1
Foxlake-----	10	0-23	25-50	6.6-7.8	0	0
		23-39	18-40	7.4-8.4	20-30	0-1
		39-80	18-40	7.4-8.4	10-20	0-1
J60C: Hattie-----	60	0-9	23-52	7.4-8.4	5-30	0-1
		9-19	24-52	7.4-8.4	15-35	0-1
		19-80	24-52	7.4-8.4	5-30	0-1
Audubon-----	30	0-8	25-45	6.6-7.8	0	0
		8-34	19-37	7.4-8.4	15-30	0-1
		34-80	18-35	7.4-8.4	10-25	0-1
Foxlake-----	10	0-23	25-50	6.6-7.8	0	0
		23-39	18-40	7.4-8.4	20-30	0-1
		39-80	18-40	7.4-8.4	10-20	0-1
J61A: Svea, bouldery-----	90	0-10	11-26	6.1-7.3	0	0
		10-23	8.0-18	6.6-7.3	0	0
		23-60	10-20	7.4-8.4	15-30	0-1
		60-80	10-20	7.4-8.4	10-20	0-1
Vallers, bouldery----	5	0-12	15-30	7.4-8.4	12-25	0-1
		12-60	10-20	7.4-8.4	15-30	0-1
		60-80	10-20	7.4-8.4	10-20	0-1
Parnell, depressional	5	0-22	25-40	6.1-7.8	0	0
		22-55	19-38	6.1-7.8	0-3	0-1
		55-80	16-24	6.6-8.4	0-10	0-1
J62C: Buse, very bouldery--	45	0-8	13-18	6.6-8.4	0-25	0-1
		8-24	10-20	7.4-8.4	15-30	0-1
		24-80	10-20	7.4-8.4	10-20	0-1
Barnes, very bouldery	25	0-15	11-26	6.1-7.3	0	0
		15-22	8.0-18	6.1-7.3	0	0
		22-50	10-20	7.4-8.4	15-30	0-1
		50-80	10-20	7.4-8.4	10-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J62C:</b>						
Hokans-----	15	0-15	11-26	6.1-7.3	0	0
		15-22	8.0-18	6.1-7.3	0	0
		22-40	10-20	7.4-8.4	15-30	0-1
		40-80	10-20	7.4-8.4	10-20	0-1
<b>Svea, bouldery-----</b>						
	10	0-10	11-26	6.1-7.3	0	0
		10-23	8.0-18	6.6-7.3	0	0
		23-60	10-20	7.4-8.4	15-30	0-1
		60-80	10-20	7.4-8.4	10-20	0-1
<b>Darnen-----</b>						
	5	0-24	17-32	6.6-7.8	0	0
		24-34	11-21	6.1-7.8	0	0
		34-80	9.0-16	7.4-8.4	0-10	0-1
<b>J62F:</b>						
<b>Buse, very bouldery--</b>						
	50	0-7	13-18	6.6-8.4	0-25	0-1
		7-44	10-20	7.4-8.4	15-30	0-1
		44-80	10-20	7.4-8.4	10-20	0-1
<b>Barnes, very bouldery</b>						
	40	0-12	11-26	6.1-7.3	0	0
		12-19	8.0-18	6.1-7.3	0	0
		19-33	10-20	7.4-8.4	15-30	0-1
		33-80	10-20	7.4-8.4	10-20	0-1
<b>Darnen-----</b>						
	10	0-24	17-32	6.6-7.8	0	0
		24-34	11-21	6.1-7.8	0	0
		34-80	9.0-16	7.4-8.4	0-10	0-1
<b>J63A:</b>						
<b>Ortonville-----</b>						
	45	0-8	13-25	7.4-8.4	5-15	0-1
		8-24	8.0-12	7.4-8.4	15-30	0-1
		24-80	8.0-12	7.4-8.4	10-20	0-1
<b>Vallers-----</b>						
	35	0-10	15-35	7.4-8.4	12-25	0-1
		10-29	10-20	7.4-8.4	15-30	0-1
		29-80	10-20	7.4-8.4	10-20	0-1
<b>Parnell, depressional</b>						
	20	0-22	25-40	6.1-7.8	0	0
		22-55	19-38	6.1-7.8	0-3	0-1
		55-80	16-24	6.6-8.4	0-10	0-1
<b>J64A:</b>						
<b>Quam-----</b>						
	90	0-9	25-45	6.6-7.8	0	0
		9-60	20-40	6.6-7.8	0-15	0-1
		60-68	15-40	6.6-7.8	0-15	0-1
		68-80	12-25	7.4-8.4	5-20	0-1
<b>Colvin-----</b>						
	5	0-10	15-30	7.4-8.4	1-10	0-1
		10-25	10-20	7.4-8.4	15-35	0-1
		25-80	10-20	7.4-8.4	10-25	0-1
<b>Quam, depressional---</b>						
	5	0-10	25-45	6.6-7.8	0	0
		10-45	20-40	6.6-7.8	0-15	0-1
		45-80	15-40	6.6-7.8	0-15	0-1
<b>J65A:</b>						
<b>Shakopee-----</b>						
	90	0-9	30-40	7.4-7.8	10-20	0-1
		9-15	25-40	7.9-8.4	10-20	0-1
		15-38	10-30	7.9-8.4	15-35	0-1
		38-80	2.0-8.0	7.4-7.8	10-20	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum
		In	meq/100 g	pH	Pct	Pct
<b>J65A:</b>						
Soils in depressions	10	0-9	30-40	7.4-7.8	10-20	0-1
		9-34	25-40	7.9-8.4	15-35	0-1
		34-45	10-30	7.9-8.4	15-35	0-1
		45-80	2.0-8.0	7.4-7.8	10-20	0-1
<b>J66A:</b>						
Emrick-----	85	0-15	15-30	6.6-7.3	0	0
		15-25	10-25	6.6-7.3	0	0
		25-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
Lakepark-----	10	0-8	20-30	6.1-7.8	0	0
		8-27	14-28	6.1-7.8	0	0
		27-41	12-22	6.6-7.8	0	0
		41-80	10-20	7.4-8.4	10-20	0-1
Heimdal-----	5	0-10	10-24	6.1-7.3	0	0
		10-22	8.0-12	6.1-7.3	0	0
		22-42	8.0-12	7.4-8.4	15-30	0-1
		42-80	8.0-12	7.4-8.4	10-20	0-1
<b>J67A:</b>						
Fordtown-----	85	0-30	20-27	6.1-7.3	0	0
		30-36	15-25	6.1-7.8	0	0
		36-80	1.0-10	7.4-8.4	2-20	0-1
Renshaw-----	8	0-7	15-25	6.1-7.8	0	0
		7-15	5.0-15	6.6-8.4	0	0
		15-20	1.0-10	6.6-8.4	5-15	0-1
		20-60	1.0-10	6.6-8.4	1-10	0-1
Spottswood-----	7	0-10	20-27	6.1-7.3	0	0
		10-26	15-25	6.1-7.8	0	0
		26-80	1.0-10	7.4-8.4	2-20	0-1
<b>J68A:</b>						
Kerkhoven-----	55	0-10	20-30	6.1-7.8	0	0
		10-35	14-28	6.1-7.8	0	0
		35-53	12-22	6.6-7.8	0	0
		53-63	11-19	7.4-8.4	15-30	0-1
		63-80	8.0-12	7.4-8.4	10-20	0-1
Friberg, depressional	35	0-23	15-28	6.1-7.8	0	0
		23-47	12-22	6.1-7.3	0	0
		47-60	11-19	7.4-8.4	15-30	0-1
		60-80	8.0-12	7.4-8.4	10-20	0-1
Emrick-----	10	0-15	15-30	6.6-7.3	0	0
		15-25	10-25	6.6-7.3	0	0
		25-36	8.0-12	7.4-8.4	15-30	0-1
		36-80	8.0-12	7.4-8.4	10-20	0-1
<b>L33B:</b>						
Kandiyohi-----	85	0-10	30-50	6.1-7.3	0	0
		10-23	25-45	6.1-7.3	0	0
		23-64	20-40	7.4-8.4	15-30	0-1
		64-80	20-40	7.4-8.4	10-20	0-1
Cosmos-----	10	0-15	30-50	6.1-7.3	0	0
		15-30	25-45	6.1-7.3	0	0
		30-36	25-45	7.4-8.4	15-25	0-1
		36-80	15-30	7.4-8.4	15-25	0-1

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and component name	Pct. of map unit	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum
		In	meq/100 g	pH	Pct	Pct
L33B:						
Okoboji-----	5	0-32	25-40	6.1-7.8	0	0
		32-56	19-29	6.1-7.8	0	0-1
		56-80	16-24	6.6-8.4	0-10	0-1
L34A:						
Cosmos-----	85	0-15	30-50	6.1-7.3	0	0
		15-30	25-45	6.1-7.3	0	0
		30-36	25-45	7.4-8.4	15-25	0-1
		36-80	15-30	7.4-8.4	15-25	0-1
Kandiyohi-----	10	0-10	30-50	6.1-7.3	0	0
		10-23	25-45	6.1-7.3	0	0
		23-64	20-40	7.4-8.4	15-30	0-1
		64-80	20-40	7.4-8.4	10-20	0-1
Okoboji-----	5	0-32	25-40	6.1-7.8	0	0
		32-56	19-29	6.1-7.8	0	0
		56-80	16-24	6.6-8.4	0-10	0-1
M-W:						
Water, miscellaneous	100	---	---	---	---	---
W:						
Water-----	100	---	---	---	---	---

Table 17.--Soil Moisture Status by Depth

(Depths of layers are in feet)

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
GP: Pits, gravel.  Udipsamments.													
J1A: Parnell, depressional---	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J2A: La Prairie-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Lamoure-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J3A: Arveson-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Marysland-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J3A: Marysland, depressional---	B/D	0.0-1.1: Moist	0.0-1.5: Moist	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist	0.0-0.8: Moist	0.0-1.5: Moist	0.0-1.8: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-0.8: Moist	0.0-1.0: Moist
		1.1-6.7: Wet	1.5-6.7: Wet	---	---	0.5-6.7: Wet	0.8-6.7: Wet	1.5-6.7: Wet	1.8-6.7: Wet	1.5-6.7: Wet	1.0-6.7: Wet	0.8-6.7: Wet	1.0-6.7: Wet
Malachy-----	B	0.0-3.6: Moist	0.0-3.9: Moist	0.0-2.8: Moist	0.0-2.5: Moist	0.0-2.6: Moist	0.0-3.0: Moist	0.0-3.6: Moist	0.0-3.9: Moist	0.0-3.6: Moist	0.0-3.3: Moist	0.0-3.0: Moist	0.0-3.3: Moist
		3.6-6.7: Wet	3.9-6.7: Wet	2.8-6.7: Wet	2.5-6.7: Wet	2.6-6.7: Wet	3.0-6.7: Wet	3.6-6.7: Wet	3.9-6.7: Wet	3.6-6.7: Wet	3.3-6.7: Wet	3.0-6.7: Wet	3.3-6.7: Wet
J4A: Rockwell-----	B/D	0.0-1.3: Moist	0.0-1.6: Moist	0.0-1.0: Moist	0.0-0.5: Moist	0.0-0.7: Moist	0.0-1.0: Moist	0.0-1.6: Moist	0.0-2.0: Moist	0.0-1.6: Moist	0.0-1.3: Moist	0.0-1.0: Moist	0.0-1.3: Moist
		1.3-6.7: Wet	1.6-6.7: Wet	1.0-6.7: Wet	0.5-6.7: Wet	0.7-6.7: Wet	1.0-6.7: Wet	1.6-6.7: Wet	2.0-6.7: Wet	1.6-6.7: Wet	1.3-6.7: Wet	1.0-6.7: Wet	1.3-6.7: Wet
Arveson-----	B/D	0.0-1.3: Moist	0.0-1.6: Moist	0.0-1.0: Moist	0.0-0.5: Moist	0.0-0.7: Moist	0.0-1.0: Moist	0.0-1.6: Moist	0.0-2.0: Moist	0.0-1.6: Moist	0.0-1.3: Moist	0.0-1.0: Moist	0.0-1.3: Moist
		1.3-6.7: Wet	1.6-6.7: Wet	1.0-6.7: Wet	0.5-6.7: Wet	0.7-6.7: Wet	1.0-6.7: Wet	1.6-6.7: Wet	2.0-6.7: Wet	1.6-6.7: Wet	1.3-6.7: Wet	1.0-6.7: Wet	1.3-6.7: Wet
J5A: Fossum-----	A/D	0.0-1.3: Moist	0.0-1.6: Moist	0.0-1.0: Moist	0.0-0.5: Moist	0.0-0.7: Moist	0.0-1.0: Moist	0.0-1.6: Moist	0.0-2.0: Moist	0.0-1.6: Moist	0.0-1.3: Moist	0.0-1.0: Moist	0.0-1.3: Moist
		1.3-6.7: Wet	1.6-6.7: Wet	1.0-6.7: Wet	0.5-6.7: Wet	0.7-6.7: Wet	1.0-6.7: Wet	1.6-6.7: Wet	2.0-6.7: Wet	1.6-6.7: Wet	1.3-6.7: Wet	1.0-6.7: Wet	1.3-6.7: Wet
Arveson-----	B/D	0.0-1.3: Moist	0.0-1.6: Moist	0.0-1.0: Moist	0.0-0.5: Moist	0.0-0.7: Moist	0.0-1.0: Moist	0.0-1.6: Moist	0.0-2.0: Moist	0.0-1.6: Moist	0.0-1.3: Moist	0.0-1.0: Moist	0.0-1.3: Moist
		1.3-6.7: Wet	1.6-6.7: Wet	1.0-6.7: Wet	0.5-6.7: Wet	0.7-6.7: Wet	1.0-6.7: Wet	1.6-6.7: Wet	2.0-6.7: Wet	1.6-6.7: Wet	1.3-6.7: Wet	1.0-6.7: Wet	1.3-6.7: Wet
Fossum, depressional---	A/D	0.0-1.1: Moist	0.0-1.5: Moist	0.0-6.7: Wet	0.0-6.7: Wet	0.0-0.5: Moist	0.0-0.8: Moist	0.0-1.5: Moist	0.0-1.8: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-0.8: Moist	0.0-1.0: Moist
		1.1-6.7: Wet	1.5-6.7: Wet	---	---	0.5-6.7: Wet	0.8-6.7: Wet	1.5-6.7: Wet	1.8-6.7: Wet	1.5-6.7: Wet	1.0-6.7: Wet	0.8-6.7: Wet	1.0-6.7: Wet
Hecla-----	A	0.0-3.6: Moist	0.0-3.9: Moist	0.0-2.8: Moist	0.0-2.5: Moist	0.0-2.6: Moist	0.0-3.0: Moist	0.0-3.6: Moist	0.0-3.9: Moist	0.0-3.6: Moist	0.0-3.3: Moist	0.0-3.0: Moist	0.0-3.3: Moist
		3.6-6.7: Wet	3.9-6.7: Wet	2.8-6.7: Wet	2.5-6.7: Wet	2.6-6.7: Wet	3.0-6.7: Wet	3.6-6.7: Wet	3.9-6.7: Wet	3.6-6.7: Wet	3.3-6.7: Wet	3.0-6.7: Wet	3.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J6A: McDonaldsville--	C/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Somewhat poorly drained soils--	C	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
J7A: Sverdrup-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Arveson-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Clontarf-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet
Egeland-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J7B: Sverdrup-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Clontarf-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J7B: Egeland-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J8A: Egeland-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Clontarf-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet
Sverdrup-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Arveson-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Hantho-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
J8B: Egeland-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Clontarf-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J8B:													
Sverdrup-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Torning-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Eckman-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Egeland, eroded	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J9A:													
Estelline-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Soils that have a thin surface layer-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J10A:													
Sinai-----	C	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet
Fulda-----	C/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J10B:													
Sinai-----	C	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet
Fulda-----	C/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J11A:													
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Parnell, depressional---	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Balaton-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
J12A:													
Marysland-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Arveson-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Marysland, depressional---	B/D	0.0-1.1: Moist 1.1-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.8: Moist 1.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J12A: Malachy-----	B	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
J13A: Oldham-----	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet --- ---	0.0-6.7: Wet --- ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: 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	0.0-0.8: Moist 0.8-6.7: Wet
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J14F: Esmond-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						
Emrick-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Heimdal-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						
J15B: Eckman-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J15B:													
Eckman, eroded--	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Egeland-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Hantho-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
Zell-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J16A:													
Friberg, depressional---	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Kerkhoven-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J17A:													
Quam, depressional---	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J17A: Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J18A: Malachy-----	B	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Arveson-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Well drained soils-----	B	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Clontarf-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet
J19A: Hecla-----	A	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Clontarf-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet
Sverdrup-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J19A:													
Hamar-----	A/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Malachy-----	B	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
J20A:													
Clontarf-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet
Hecla-----	A	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Arveson-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Well drained soils-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
J21A:													
Hamar-----	A/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Less sandy soils	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J21A:													
Arveson-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Hecla-----	A	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.6: Moist 3.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
J22A:													
Renshaw-----	B	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 --- ---	0.0-6.6: Moist --- ---	0.0-6.6: Moist --- ---	0.0-0.7: Dry 0.7-6.6: Moist	0.0-6.6: Moist --- ---	0.0-6.6: Moist --- ---	0.0-6.6: Moist --- ---	0.0-6.6: Moist --- ---
Fordtown-----	B	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-3.9: Moist 3.9-6.7: Wet ---	0.0-3.6: Moist 3.6-6.7: Wet ---	0.0-3.8: Moist 3.8-6.7: Wet ---	0.0-4.3: Moist 4.3-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-0.7: Dry 0.7-4.9: Moist 4.9-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-4.3: Moist 4.3-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---
Arvilla-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						
Fordville-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						
J23A:													
Lamoure-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Rauville-----	D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-6.7: Wet --- ---	0.0-6.7: Wet --- ---	0.0-6.7: Wet --- ---	0.0-0.3: Moist 0.3-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.3: Moist 0.3-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J23A: La Prairie-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
J24F: Buse-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Darnen-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Barnes-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J25A: Rauville-----	D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.3: Moist 0.3-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.3: Moist 0.3-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet
Lamoure-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J26B: Darnen-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Hokans-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J26B: Lakepark-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J27A: Hantho-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
Eckman-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						
Quam-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Rondell-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Tara-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
J28A: Vallars, bouldery-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Parnell, depressional---	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet --- ---	0.0-6.7: Wet --- ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J29A:													
Cathro-----	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J30A:													
Tara-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
Balaton-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Byrne-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Quam-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J31B:													
Arvilla-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J31B: Sandberg-----	A	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Renshaw-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Sioux-----	A	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	---						
Fordtown-----	B	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-4.1: Moist 4.1-6.7: Wet ---	0.0-3.9: Moist 3.9-6.7: Wet ---	0.0-4.1: Moist 4.1-6.7: Wet ---	0.0-4.3: Moist 4.3-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-0.7: Dry 0.7-4.9: Moist 4.9-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-4.3: Moist 4.3-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---
J32A: Bigstone-----	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Urness-----	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J33D2: Sisseton, eroded	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Heimdal, eroded	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Esmond, eroded--	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Heimdal, slightly eroded	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Emrick-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
J34B: Byrne-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Buse-----	B	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-0.7: Dry 0.7-6.6: Moist	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---
Buse, eroded----	B	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-0.7: Dry 0.7-6.6: Moist	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J34B:													
Hokans-----	B	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-4.6: Moist 4.6-6.6: Wet	0.0-3.9: Moist 3.9-6.6: Wet	0.0-4.1: Moist 4.1-6.6: Wet	0.0-4.6: Moist 4.6-6.6: Wet	0.0-6.6: Moist ---	0.0-0.7: Dry 0.7-6.6: Moist	0.0-6.6: Moist ---	0.0-5.9: Moist 5.9-6.6: Wet	0.0-4.6: Moist 4.6-6.6: Wet	0.0-5.2: Moist 5.2-6.6: Wet
Tara-----	B	0.0-3.9: Moist 3.9-6.6: Wet	0.0-5.9: Moist 5.9-6.6: Wet	0.0-2.0: Moist 2.0-6.6: Wet	0.0-1.5: Moist 1.5-6.6: Wet	0.0-1.6: Moist 1.6-6.6: Wet	0.0-2.0: Moist 2.0-6.6: Wet	0.0-3.9: Moist 3.9-6.6: Wet	0.0-5.9: Moist 5.9-6.6: Wet	0.0-3.9: Moist 3.9-6.6: Wet	0.0-2.6: Moist 2.6-6.6: Wet	0.0-2.0: Moist 2.0-6.6: Wet	0.0-2.3: Moist 2.3-6.6: Wet
J35B:													
Hokans-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Buse-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Barnes-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Buse, eroded----	B	0.0-6.6: Moist ---	0.0-0.7: Dry 0.7-6.6: Moist	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---	0.0-6.6: Moist ---						
Svea-----	B	0.0-4.9: Moist 4.9-6.6: Wet	0.0-6.6: Moist ---	0.0-3.0: Moist 3.0-6.6: Wet	0.0-2.5: Moist 2.5-6.6: Wet	0.0-2.6: Moist 2.6-6.6: Wet	0.0-3.0: Moist 3.0-6.6: Wet	0.0-4.9: Moist 4.9-6.6: Wet	0.0-6.6: Moist ---	0.0-4.9: Moist 4.9-6.6: Wet	0.0-3.9: Moist 3.9-6.6: Wet	0.0-3.0: Moist 3.0-6.6: Wet	0.0-3.3: Moist 3.3-6.6: Wet
J36C2:													
Buse, eroded----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J36C2: Barnes, eroded--	B	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 ---	0.0-6.6: Moist ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Barnes, slightly eroded-----	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Buse, slightly eroded-----	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Darnen-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Langhei, eroded	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
J37D2: Langhei, eroded	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Barnes, eroded--	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Buse, eroded----	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J37D2: Darnen-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Barnes, slightly eroded-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J38B: Zell-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Eckman-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Zell, eroded----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Egeland-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Hantho-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
J38C2: Zell, eroded----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J38C2: Eckman, eroded--	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Zell, slightly eroded-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Hantho-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
Eckman, slightly eroded-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Egeland-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J39A. Udorthents													
J40A: Foxlake-----	C/D	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Audubon-----	C	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet
Calcareous soils	C/D	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J40A: Soils in depressions----	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: 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	0.0-0.8: Moist 0.8-6.7: Wet
J41A: Urness-----	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Bigstone-----	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J42C: Sandberg-----	A	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Arvilla-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Everts-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J43A: Quam, depressional---	D	0.0-6.7: Wet											
Cathro-----	D	0.0-6.7: Wet											
Urness-----	D	0.0-6.7: Wet											
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J44B: Esmond-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Heimdal-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Esmond, eroded--	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Emrick-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J44C2:													
Esmond, eroded--	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Heimdal, eroded	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Esmond, slightly eroded-----	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Heimdal, slightly eroded	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Emrick-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Sisseton, eroded	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
J45F:													
Sandberg-----	A	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
Everts-----	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J45F:													
Arvilla-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Sioux-----	A	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J46B:													
Byrne-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Hokans-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Buse-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Quam-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J47A:													
Swenoda-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Clontarf-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J47A: Egeland-----	B	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 ---	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---
J48A: Bigstone-----	D	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	0.0-6.7: 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
Parnell-----	D	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	0.0-6.7: 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
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J49A: Lakepark-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Parnell, depressional---	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Emrick-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- 3.0-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- 4.9-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J50A: Balaton-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Tara-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
McIntosh-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
Well drained soils-----	B	0.0-6.7: Moist --- Wet	0.0-6.7: Moist --- Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Winger-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J51A: Bearden-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
Quam, depressional---	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet --- Wet	0.0-6.7: Wet --- Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Rondell-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J51A: Winger-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J52A: Rondell-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Zell-----	B	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 --- ---	0.0-6.7: Moist --- 0.7-6.7: Moist	0.0-0.7: Dry Moist ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---
Bearden-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
J53A: Ortonville-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Well drained soils-----	B	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-0.7: Dry Moist 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J54A: Marysland, depressional---	B/D	0.0-1.1: Moist 1.1-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-6.7: Wet --- ---	0.0-6.7: Wet --- ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.8: Moist 1.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J54A: Marysland soils that are not ponded-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J55A: Sedgeville-----	D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Soils that are frequently flooded-----	D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.3: Moist 0.3-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.3: Moist 0.3-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet
J56A: Winger-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Balaton-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Parnell, depressiona---	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J56A: Vallars-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J57A: Balaton-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Well drained soils-----	B	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
Tara-----	B	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.9: Moist 5.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet
Vallars-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J58B: Torning-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						
Egeland-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						
Clontarf-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J58B: Sverdrup-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
J59A: Urness, sandy substratum-----	B/D	0.0-6.7: Wet											
Marysland-----	B/D	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
J60B: Hattie-----	C	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet
Audubon-----	C	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet
Foxlake-----	C/D	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
J60C: Hattie-----	C	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet
Audubon-----	C	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-5.6: Moist 5.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.8: Moist 2.8-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J60C: Foxlake-----	C/D	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
J61A: Svea, bouldery--	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Vallers, bouldery-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Parnell, depressional---	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet --- Wet	0.0-6.7: Wet --- Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
J62C: Buse, very bouldery-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						
Barnes, very bouldery-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						
Hokans-----	B	0.0-6.7: Moist --- ---	0.0-6.6: Moist --- ---	0.0-4.6: Moist 4.6-6.6: Wet	0.0-3.9: Moist 3.9-6.6: Wet	0.0-4.1: Moist 4.1-6.6: Wet	0.0-4.6: Moist 4.6-6.6: Wet	0.0-6.6: Moist --- ---	0.0-0.7: Dry 0.7-6.6: Moist	0.0-6.6: Moist --- ---	0.0-5.9: Moist 5.9-6.6: Wet	0.0-4.6: Moist 4.6-6.6: Wet	0.0-5.2: Moist 5.2-6.6: Wet
Svea, bouldery--	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J62C: Darnen-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
J62F: Buse, very bouldery-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Barnes, very bouldery-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Darnen-----	B	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-4.6: Moist 4.6-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-4.1: Moist 4.1-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-5.9: Moist 5.9-6.7: Wet	0.0-4.6: Moist 4.6-6.7: Wet	0.0-5.2: Moist 5.2-6.7: Wet
J63A: Ortonville-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Vallers-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Parnell, depressional---	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J64A:													
Quam-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Colvin-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Quam, depressional---	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet --- ---	0.0-6.7: Wet --- ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
J65A:													
Shakopee-----	C	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Soils in depressions----	C	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet --- ---	0.0-6.7: Wet --- ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
J66A:													
Emrick-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist --- ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
Lakepark-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Heimdal-----	B	0.0-6.7: Moist --- ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---	0.0-6.7: Moist --- ---						

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
J67A: Fordtown-----	B	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-4.1: Moist 4.1-6.7: Wet ---	0.0-3.9: Moist 3.9-6.7: Wet ---	0.0-4.1: Moist 4.1-6.7: Wet ---	0.0-4.3: Moist 4.3-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-0.7: Dry 0.7-4.9: Moist 4.9-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---	0.0-4.3: Moist 4.3-6.7: Wet ---	0.0-4.8: Moist 4.8-6.7: Wet ---
Renshaw-----	B	0.0-6.7: Moist ---	0.0-0.7: Dry 0.7-6.7: Moist	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---	0.0-6.7: Moist ---						
Spottswood-----	B	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet
J68A: Kerkhoven-----	B/D	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet
Friberg, depressional---	B/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Emrick-----	B	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.5: Moist 2.5-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-6.7: Moist ---	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.9: Moist 3.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-3.3: Moist 3.3-6.7: Wet
L33B: Kandiyohi-----	C/D	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-1.8: Moist 1.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.8: Moist 1.8-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet
Cosmos-----	C/D	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet

Table 17.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
L33B: Okoboji-----	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
L34A: Cosmos-----	C/D	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-2.6: Moist 2.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.3: Moist 1.3-6.7: Wet	0.0-0.7: Moist 0.7-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
Kandiyohi-----	C/D	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-1.8: Moist 1.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.8: Moist 1.8-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-4.9: Moist 4.9-6.7: Wet	0.0-3.0: Moist 3.0-6.7: Wet	0.0-2.3: Moist 2.3-6.7: Wet	0.0-1.6: Moist 1.6-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet
Okoboji-----	C/D	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-6.7: Wet ---	0.0-6.7: Wet ---	0.0-0.5: Moist 0.5-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-2.0: Moist 2.0-6.7: Wet	0.0-1.5: Moist 1.5-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet	0.0-0.8: Moist 0.8-6.7: Wet	0.0-1.0: Moist 1.0-6.7: Wet
M-W. Water, miscellaneous													
W. Water													

Table 18.--Flooding Frequency and Duration

(See text for definitions of terms used in this table. Absence of an entry indicates that no estimate was made. Estimates of the frequency of flooding apply to the whole year rather than to individual months)

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
GP: Pits, gravel.  Udipsamments.												
J1A: Parnell, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallars-----	None	None	None	None	None	None	None	None	None	None	None	None
J2A: La Prairie-----	None	None	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Very brief	Occasional Very brief	None	None	None	None
Lamoure-----	None	None	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Very brief	Occasional Very brief	None	None	None	None
J3A: Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Marysland-----	None	None	None	None	None	None	None	None	None	None	None	None
Marysland, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Malachy-----	None	None	None	None	None	None	None	None	None	None	None	None
J4A: Rockwell-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
J5A: Fossum-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J5A:												
Fossum, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Hecla-----	None	None	None	None	None	None	None	None	None	None	None	None
J6A:												
McDonaldsville--	None	None	None	None	None	None	None	None	None	None	None	None
Somewhat poorly drained soils--	None	None	None	None	None	None	None	None	None	None	None	None
J7A:												
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
J7B:												
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
J8A:												
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None
J8B:												
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J8B:												
Torning-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland, eroded	None	None	None	None	None	None	None	None	None	None	None	None
J9A:												
Estelline-----	None	None	None	None	None	None	None	None	None	None	None	None
Soils that have a thin surface layer-----	None	None	None	None	None	None	None	None	None	None	None	None
J10A:												
Sinai-----	None	None	None	None	None	None	None	None	None	None	None	None
Fulda-----	None	None	None	None	None	None	None	None	None	None	None	None
J10B:												
Sinai-----	None	None	None	None	None	None	None	None	None	None	None	None
Fulda-----	None	None	None	None	None	None	None	None	None	None	None	None
J11A:												
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Balaton-----	None	None	None	None	None	None	None	None	None	None	None	None
J12A:												
Marysland-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Marysland, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Malachy-----	None	None	None	None	None	None	None	None	None	None	None	None
J13A:												
Oldham-----	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J13A: Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J14F: Esmond-----	None	None	None	None	None	None	None	None	None	None	None	None
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
Heimdal-----	None	None	None	None	None	None	None	None	None	None	None	None
J15B: Eckman-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None
Zell-----	None	None	None	None	None	None	None	None	None	None	None	None
J16A: Friberg, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Kerkhoven-----	None	None	None	None	None	None	None	None	None	None	None	None
J17A: Quam, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J18A: Malachy-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Well drained soils-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
<b>J19A:</b>												
Hecla-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
Hamar-----	None	None	None	None	None	None	None	None	None	None	None	None
Malachy-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J20A:</b>												
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Hecla-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Well drained soils-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J21A:</b>												
Hamar-----	None	None	None	None	None	None	None	None	None	None	None	None
Less sandy soils	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Hecla-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J22A:</b>												
Renshaw-----	None	None	None	None	None	None	None	None	None	None	None	None
Fordtown-----	None	None	None	None	None	None	None	None	None	None	None	None
Arvilla-----	None	None	None	None	None	None	None	None	None	None	None	None
Fordville-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J23A:</b>												
Lamoure-----	None	None	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Very brief	Occasional Very brief	None	None	None	None
Rauville-----	None	None	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Occasional Brief	Occasional Brief	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J23A: La Prairie-----	None	None	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Very brief	Occasional Very brief	None	None	None	None
J24F: Buse-----	None	None	None	None	None	None	None	None	None	None	None	None
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes-----	None	None	None	None	None	None	None	None	None	None	None	None
J25A: Rauville-----	None	None	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Occasional Brief	Occasional Brief	None	None	None	None
Lamoure-----	None	None	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Very brief	Occasional Very brief	None	None	None	None
J26B: Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
Hokans-----	None	None	None	None	None	None	None	None	None	None	None	None
Lakepark-----	None	None	None	None	None	None	None	None	None	None	None	None
J27A: Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman-----	None	None	None	None	None	None	None	None	None	None	None	None
Quam-----	None	None	None	None	None	None	None	None	None	None	None	None
Rondell-----	None	None	None	None	None	None	None	None	None	None	None	None
Tara-----	None	None	None	None	None	None	None	None	None	None	None	None
J28A: Vallers, bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J29A:												
Cathro-----	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J30A:												
Tara-----	None	None	None	None	None	None	None	None	None	None	None	None
Balaton-----	None	None	None	None	None	None	None	None	None	None	None	None
Byrne-----	None	None	None	None	None	None	None	None	None	None	None	None
Quam-----	None	None	None	None	None	None	None	None	None	None	None	None
J31B:												
Arvilla-----	None	None	None	None	None	None	None	None	None	None	None	None
Sandberg-----	None	None	None	None	None	None	None	None	None	None	None	None
Renshaw-----	None	None	None	None	None	None	None	None	None	None	None	None
Sioux-----	None	None	None	None	None	None	None	None	None	None	None	None
Fordtown-----	None	None	None	None	None	None	None	None	None	None	None	None
J32A:												
Bigstone-----	None	None	None	None	None	None	None	None	None	None	None	None
Urness-----	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J33D2:												
Sisseton, eroded	None	None	None	None	None	None	None	None	None	None	None	None
Heimdal, eroded	None	None	None	None	None	None	None	None	None	None	None	None
Esmond, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Heimdal, slightly eroded	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J33D2:												
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
J34B:												
Byrne-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Hokans-----	None	None	None	None	None	None	None	None	None	None	None	None
Tara-----	None	None	None	None	None	None	None	None	None	None	None	None
J35B:												
Hokans-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Svea-----	None	None	None	None	None	None	None	None	None	None	None	None
J36C2:												
Buse, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, slightly eroded-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse, slightly eroded-----	None	None	None	None	None	None	None	None	None	None	None	None
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
Langhei, eroded	None	None	None	None	None	None	None	None	None	None	None	None
J37D2:												
Langhei, eroded	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Buse, eroded----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J37D2:												
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, slightly eroded-----	None	None	None	None	None	None	None	None	None	None	None	None
J38B:												
Zell-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman-----	None	None	None	None	None	None	None	None	None	None	None	None
Zell, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None
J38C2:												
Zell, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Zell, slightly eroded-----	None	None	None	None	None	None	None	None	None	None	None	None
Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman, slightly eroded-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
J39A. Udorthents												
J40A:												
Foxlake-----	None	None	None	None	None	None	None	None	None	None	None	None
Audubon-----	None	None	None	None	None	None	None	None	None	None	None	None
Calcareous soils	None	None	None	None	None	None	None	None	None	None	None	None
Soils in depressions----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J41A:												
Urness-----	None	None	None	None	None	None	None	None	None	None	None	None
Bigstone-----	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J42C:												
Sandberg-----	None	None	None	None	None	None	None	None	None	None	None	None
Arvilla-----	None	None	None	None	None	None	None	None	None	None	None	None
Everts-----	None	None	None	None	None	None	None	None	None	None	None	None
J43A:												
Quam, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Cathro-----	None	None	None	None	None	None	None	None	None	None	None	None
Urness-----	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J44B:												
Esmond-----	None	None	None	None	None	None	None	None	None	None	None	None
Heimdal-----	None	None	None	None	None	None	None	None	None	None	None	None
Esmond, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
J44C2:												
Esmond, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Heimdal, eroded	None	None	None	None	None	None	None	None	None	None	None	None
Esmond, slightly eroded-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J44C2: Heimdal, slightly eroded	None	None	None	None	None	None	None	None	None	None	None	None
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
Sisseton, eroded	None	None	None	None	None	None	None	None	None	None	None	None
J45F: Sandberg-----	None	None	None	None	None	None	None	None	None	None	None	None
Everts-----	None	None	None	None	None	None	None	None	None	None	None	None
Arvilla-----	None	None	None	None	None	None	None	None	None	None	None	None
Sioux-----	None	None	None	None	None	None	None	None	None	None	None	None
J46B: Byrne-----	None	None	None	None	None	None	None	None	None	None	None	None
Hokans-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse-----	None	None	None	None	None	None	None	None	None	None	None	None
Quam-----	None	None	None	None	None	None	None	None	None	None	None	None
J47A: Swenoda-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
J48A: Bigstone-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell-----	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J49A:												
Lakepark-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J50A:												
Balaton-----	None	None	None	None	None	None	None	None	None	None	None	None
Tara-----	None	None	None	None	None	None	None	None	None	None	None	None
McIntosh-----	None	None	None	None	None	None	None	None	None	None	None	None
Well drained soils-----	None	None	None	None	None	None	None	None	None	None	None	None
Winger-----	None	None	None	None	None	None	None	None	None	None	None	None
J51A:												
Bearden-----	None	None	None	None	None	None	None	None	None	None	None	None
Quam, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Rondell-----	None	None	None	None	None	None	None	None	None	None	None	None
Winger-----	None	None	None	None	None	None	None	None	None	None	None	None
J52A:												
Rondell-----	None	None	None	None	None	None	None	None	None	None	None	None
Zell-----	None	None	None	None	None	None	None	None	None	None	None	None
Bearden-----	None	None	None	None	None	None	None	None	None	None	None	None
J53A:												
Ortonville-----	None	None	None	None	None	None	None	None	None	None	None	None
Well drained soils-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J53A: Vallars-----	None	None	None	None	None	None	None	None	None	None	None	None
J54A: Marysland, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Marysland soils that are not ponded-----	None	None	None	None	None	None	None	None	None	None	None	None
J55A: Sedgeville-----	None	None	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Brief	Occasional Very brief	Occasional Very brief	None	None	None	None
Soils that are frequently flooded-----	None	None	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Frequent Brief	Frequent Brief	None	None	None	None
J56A: Winger-----	None	None	None	None	None	None	None	None	None	None	None	None
Balaton-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallars-----	None	None	None	None	None	None	None	None	None	None	None	None
J57A: Balaton-----	None	None	None	None	None	None	None	None	None	None	None	None
Well drained soils-----	None	None	None	None	None	None	None	None	None	None	None	None
Tara-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallars-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J58B:												
Torning-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
J59A:												
Urness, sandy substratum----	None	None	None	None	None	None	None	None	None	None	None	None
Marysland-----	None	None	None	None	None	None	None	None	None	None	None	None
J60B:												
Hattie-----	None	None	None	None	None	None	None	None	None	None	None	None
Audubon-----	None	None	None	None	None	None	None	None	None	None	None	None
Foxlake-----	None	None	None	None	None	None	None	None	None	None	None	None
J60C:												
Hattie-----	None	None	None	None	None	None	None	None	None	None	None	None
Audubon-----	None	None	None	None	None	None	None	None	None	None	None	None
Foxlake-----	None	None	None	None	None	None	None	None	None	None	None	None
J61A:												
Svea, bouldery--	None	None	None	None	None	None	None	None	None	None	None	None
Vallers, bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
J62C:												
Buse, very bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, very bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J62C:												
Hokans-----	None	None	None	None	None	None	None	None	None	None	None	None
Svea, bouldery--	None	None	None	None	None	None	None	None	None	None	None	None
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
J62F:												
Buse, very bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, very bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
J63A:												
Ortonville-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
J64A:												
Quam-----	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Quam, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
J65A:												
Shakopee-----	None	None	None	None	None	None	None	None	None	None	None	None
Soils in depressions---	None	None	None	None	None	None	None	None	None	None	None	None
J66A:												
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
Lakepark-----	None	None	None	None	None	None	None	None	None	None	None	None
Heimdahl-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 18.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J67A:												
Fordtown-----	None	None	None	None	None	None	None	None	None	None	None	None
Renshaw-----	None	None	None	None	None	None	None	None	None	None	None	None
Spottswood-----	None	None	None	None	None	None	None	None	None	None	None	None
J68A:												
Kerkhoven-----	None	None	None	None	None	None	None	None	None	None	None	None
Friberg, depressional---	None	None	None	None	None	None	None	None	None	None	None	None
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
L33B:												
Kandiyohi-----	None	None	None	None	None	None	None	None	None	None	None	None
Cosmos-----	None	None	None	None	None	None	None	None	None	None	None	None
Okoboji-----	None	None	None	None	None	None	None	None	None	None	None	None
L34A:												
Cosmos-----	None	None	None	None	None	None	None	None	None	None	None	None
Kandiyohi-----	None	None	None	None	None	None	None	None	None	None	None	None
Okoboji-----	None	None	None	None	None	None	None	None	None	None	None	None
M-W. Water, Miscellaneous												
W. Water												

Table 19.--Ponding Frequency, Duration, and Depth

(Depth refers to the depth, in feet, of the water above the surface. Estimates of the frequency of ponding apply to the entire year rather than to individual months)

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
GP: Pits, gravel.  Udipsamments.												
J1A: Parnell, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J2A: La Prairie-----	None	None	None	None	None	None	None	None	None	None	None	None
Lamoure-----	None	None	None	None	None	None	None	None	None	None	None	None
J3A: Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Marysland-----	None	None	None	None	None	None	None	None	None	None	None	None
Marysland, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Malachy-----	None	None	None	None	None	None	None	None	None	None	None	None
J4A: Rockwell-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
J5A: Fossum-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J5A:												
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Fossum, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Hecla-----	None	None	None	None	None	None	None	None	None	None	None	None
J6A:												
McDonaldsville--	None	None	None	None	None	None	None	None	None	None	None	None
Somewhat poorly drained soils--	None	None	None	None	None	None	None	None	None	None	None	None
J7A:												
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
J7B:												
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
J8A:												
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
<b>J8B:</b>												
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
Torning-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland, eroded	None	None	None	None	None	None	None	None	None	None	None	None
<b>J9A:</b>												
Estelline-----	None	None	None	None	None	None	None	None	None	None	None	None
Soils that have a thin surface layer-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J10A:</b>												
Sinai-----	None	None	None	None	None	None	None	None	None	None	None	None
Fulda-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J10B:</b>												
Sinai-----	None	None	None	None	None	None	None	None	None	None	None	None
Fulda-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J11A:</b>												
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Balaton-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J12A:</b>												
Marysland-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J12A: Marysland, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Malachy-----	None	None	None	None	None	None	None	None	None	None	None	None
J13A: Oldham-----	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J14F: Esmond-----	None	None	None	None	None	None	None	None	None	None	None	None
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
Heimdal-----	None	None	None	None	None	None	None	None	None	None	None	None
J15B: Eckman-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None
Zell-----	None	None	None	None	None	None	None	None	None	None	None	None
J16A: Friberg, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Kerkhoven-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J17A: Quam, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J18A: Malachy-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Well drained soils-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
J19A: Hecla-----	None	None	None	None	None	None	None	None	None	None	None	None
Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Sverdrup-----	None	None	None	None	None	None	None	None	None	None	None	None
Hamar-----	None	None	None	None	None	None	None	None	None	None	None	None
Malachy-----	None	None	None	None	None	None	None	None	None	None	None	None
J20A: Clontarf-----	None	None	None	None	None	None	None	None	None	None	None	None
Hecla-----	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Well drained soils-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J21A:												
Hamar-----	None	None	None	None	None	None	None	None	None	None	None	None
Less sandy soils	None	None	None	None	None	None	None	None	None	None	None	None
Arveson-----	None	None	None	None	None	None	None	None	None	None	None	None
Hecla-----	None	None	None	None	None	None	None	None	None	None	None	None
J22A:												
Renshaw-----	None	None	None	None	None	None	None	None	None	None	None	None
Fordtown-----	None	None	None	None	None	None	None	None	None	None	None	None
Arvilla-----	None	None	None	None	None	None	None	None	None	None	None	None
Fordville-----	None	None	None	None	None	None	None	None	None	None	None	None
J23A:												
Lamoure-----	None	None	None	None	None	None	None	None	None	None	None	None
Rauville-----	None	None	None	None	None	None	None	None	None	None	None	None
La Prairie-----	None	None	None	None	None	None	None	None	None	None	None	None
J24F:												
Buse-----	None	None	None	None	None	None	None	None	None	None	None	None
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes-----	None	None	None	None	None	None	None	None	None	None	None	None
J25A:												
Rauville-----	None	None	None	None	None	None	None	None	None	None	None	None
Lamoure-----	None	None	None	None	None	None	None	None	None	None	None	None
J26B:												
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
Hokans-----	None	None	None	None	None	None	None	None	None	None	None	None
Lakepark-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
<b>J27A:</b>												
Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman-----	None	None	None	None	None	None	None	None	None	None	None	None
Quam-----	None	None	None	None	None	None	None	None	None	None	None	None
Rondell-----	None	None	None	None	None	None	None	None	None	None	None	None
Tara-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J28A:</b>												
Vallers, bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
<b>J29A:</b>												
Cathro-----	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J30A:</b>												
Tara-----	None	None	None	None	None	None	None	None	None	None	None	None
Balaton-----	None	None	None	None	None	None	None	None	None	None	None	None
Byrne-----	None	None	None	None	None	None	None	None	None	None	None	None
Quam-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J31B:</b>												
Arvilla-----	None	None	None	None	None	None	None	None	None	None	None	None
Sandberg-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J31B:												
Renshaw-----	None	None	None	None	None	None	None	None	None	None	None	None
Sioux-----	None	None	None	None	None	None	None	None	None	None	None	None
Fordtown-----	None	None	None	None	None	None	None	None	None	None	None	None
J32A:												
Bigstone-----	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Urness-----	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J33D2:												
Sisseton, eroded	None	None	None	None	None	None	None	None	None	None	None	None
Heimdal, eroded	None	None	None	None	None	None	None	None	None	None	None	None
Esmond, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Heimdal, slightly eroded	None	None	None	None	None	None	None	None	None	None	None	None
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
J34B:												
Byrne-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Hokans-----	None	None	None	None	None	None	None	None	None	None	None	None
Tara-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
<b>J35B:</b>												
Hokans-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Svea-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J36C2:</b>												
Buse, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Barnes-----	None	None	None	None	None	None	None	None	None	None	None	None
Buse-----	None	None	None	None	None	None	None	None	None	None	None	None
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
Langhei, eroded	None	None	None	None	None	None	None	None	None	None	None	None
<b>J37D2:</b>												
Langhei, eroded	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Buse, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, slightly eroded-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J38B:</b>												
Zell-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman-----	None	None	None	None	None	None	None	None	None	None	None	None
Zell, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J38C2:												
Zell, eroded----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman, eroded--	None	None	None	None	None	None	None	None	None	None	None	None
Zell, slightly eroded-----	None	None	None	None	None	None	None	None	None	None	None	None
Hantho-----	None	None	None	None	None	None	None	None	None	None	None	None
Eckman, slightly eroded-----	None	None	None	None	None	None	None	None	None	None	None	None
Egeland-----	None	None	None	None	None	None	None	None	None	None	None	None
J39A. Udorthents												
J40A:												
Foxlake-----	None	None	None	None	None	None	None	None	None	None	None	None
Audubon-----	None	None	None	None	None	None	None	None	None	None	None	None
Calcareous soils	None	None	None	None	None	None	None	None	None	None	None	None
Soils in depressions----	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
J41A:												
Urness-----	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Bigstone-----	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J42C:												
Sandberg-----	None											
Arvilla-----	None											
Everts-----	None											
J43A:												
Quam, depressional---	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 0.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 2.0
Cathro-----	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 0.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 2.0
Urness-----	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 0.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 2.0
Colvin-----	None											
Vallers-----	None											
J44B:												
Esmond-----	None											
Heimdal-----	None											
Esmond, eroded--	None											
Emrick-----	None											
J44C2:												
Esmond, eroded--	None											
Heimdal, eroded	None											
Esmond, slightly eroded-----	None											

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J44C2:												
Heimdal, slightly eroded	None											
Emrick-----	None											
Sisseton, eroded	None											
J45F:												
Sandberg-----	None											
Everts-----	None											
Arvilla-----	None											
Sioux-----	None											
J46B:												
Byrne-----	None											
Hokans-----	None											
Buse-----	None											
Quam-----	None											
J47A:												
Swenoda-----	None											
Clontarf-----	None											
Egeland-----	None											
J48A:												
Bigstone-----	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 0.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 2.0
Parnell-----	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 0.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 2.0

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J48A:												
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallars-----	None	None	None	None	None	None	None	None	None	None	None	None
J49A:												
Lakepark-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallars-----	None	None	None	None	None	None	None	None	None	None	None	None
J50A:												
Balaton-----	None	None	None	None	None	None	None	None	None	None	None	None
Tara-----	None	None	None	None	None	None	None	None	None	None	None	None
McIntosh-----	None	None	None	None	None	None	None	None	None	None	None	None
Well drained soils-----	None	None	None	None	None	None	None	None	None	None	None	None
Winger-----	None	None	None	None	None	None	None	None	None	None	None	None
J51A:												
Bearden-----	None	None	None	None	None	None	None	None	None	None	None	None
Quam, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Rondell-----	None	None	None	None	None	None	None	None	None	None	None	None
Winger-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J52A:												
Rondell-----	None	None	None	None	None	None	None	None	None	None	None	None
Zell-----	None	None	None	None	None	None	None	None	None	None	None	None
Bearden-----	None	None	None	None	None	None	None	None	None	None	None	None
J53A:												
Ortonville-----	None	None	None	None	None	None	None	None	None	None	None	None
Well drained soils-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
J54A:												
Marysland, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Marysland soils that are not ponded-----	None	None	None	None	None	None	None	None	None	None	None	None
J55A:												
Sedgeville-----	None	None	None	None	None	None	None	None	None	None	None	None
Soils that are frequently flooded-----	None	None	None	None	None	None	None	None	None	None	None	None
J56A:												
Winger-----	None	None	None	None	None	None	None	None	None	None	None	None
Balaton-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J56A:												
Colvin-----	None											
Vallers-----	None											
J57A:												
Balaton-----	None											
Well drained soils-----	None											
Tara-----	None											
Vallers-----	None											
J58B:												
Torning-----	None											
Egeland-----	None											
Clontarf-----	None											
Sverdrup-----	None											
J59A:												
Urness, sandy substratum-----	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 3.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 0.5	Frequent Very long Depth: 1.0	Frequent Very long Depth: 2.0	Frequent Very long Depth: 2.5	Frequent Very long Depth: 2.0
Marysland-----	None											
J60B:												
Hattie-----	None											
Audubon-----	None											
Foxlake-----	None											
J60C:												
Hattie-----	None											
Audubon-----	None											
Foxlake-----	None											

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
J61A:												
Svea, bouldery--	None	None	None	None	None	None	None	None	None	None	None	None
Vallers, bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
J62C:												
Buse, very bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, very bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Hokans-----	None	None	None	None	None	None	None	None	None	None	None	None
Svea, bouldery--	None	None	None	None	None	None	None	None	None	None	None	None
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
J62F:												
Buse, very bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Barnes, very bouldery-----	None	None	None	None	None	None	None	None	None	None	None	None
Darnen-----	None	None	None	None	None	None	None	None	None	None	None	None
J63A:												
Ortonville-----	None	None	None	None	None	None	None	None	None	None	None	None
Vallers-----	None	None	None	None	None	None	None	None	None	None	None	None
Parnell, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
<b>J64A:</b>												
Quam-----	None	None	None	None	None	None	None	None	None	None	None	None
Colvin-----	None	None	None	None	None	None	None	None	None	None	None	None
Quam, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
<b>J65A:</b>												
Shakopee-----	None	None	None	None	None	None	None	None	None	None	None	None
Soils in depressions---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
<b>J66A:</b>												
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None
Lakepark-----	None	None	None	None	None	None	None	None	None	None	None	None
Heimdal-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J67A:</b>												
Fordtown-----	None	None	None	None	None	None	None	None	None	None	None	None
Renshaw-----	None	None	None	None	None	None	None	None	None	None	None	None
Spottswood-----	None	None	None	None	None	None	None	None	None	None	None	None
<b>J68A:</b>												
Kerkhoven-----	None	None	None	None	None	None	None	None	None	None	None	None
Friberg, depressional---	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
Emrick-----	None	None	None	None	None	None	None	None	None	None	None	None

Table 19.--Ponding Frequency, Duration, and Depth--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
L33B:												
Kandiyohi-----	None	None	None	None	None	None	None	None	None	None	None	None
Cosmos-----	None	None	None	None	None	None	None	None	None	None	None	None
Okoboji-----	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
L34A:												
Cosmos-----	None	None	None	None	None	None	None	None	None	None	None	None
Kandiyohi-----	None	None	None	None	None	None	None	None	None	None	None	None
Okoboji-----	None	None	Frequent Long Depth: 0.5	Frequent Long Depth: 1.0	None	None	None	None	None	None	None	None
M-W. Water, miscellaneous												
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 component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
GP:				
Pits, gravel-----	80	---	---	---
Udipsamments-----	20	---	---	---
J1A:				
Parnell, depressional--	90	High	High	Low
Colvin-----	5	High	High	Low
Vallers-----	5	High	High	Low
J2A:				
La Prairie-----	90	Moderate	Moderate	Low
Lamoure-----	10	High	High	Moderate
J3A:				
Arveson-----	80	High	High	Low
Marysland-----	10	High	High	Low
Marysland, depressional	5	High	High	Low
Malachy-----	5	High	Low	Low
J4A:				
Rockwell-----	90	High	High	Low
Arveson-----	10	High	High	Low
J5A:				
Fossum-----	85	Moderate	High	Low
Arveson-----	10	High	High	Low
Fossum, depressional---	3	Moderate	High	Low
Hecla-----	2	Moderate	Moderate	Low
J6A:				
McDonaldsville-----	90	Moderate	High	Low
Somewhat poorly drained soils-----	10	Moderate	High	Low
J7A:				
Sverdrup-----	85	Low	Low	Low
Arveson-----	5	High	High	Low
Clontarf-----	5	Moderate	Low	Low
Egeland-----	5	Low	Moderate	Low
J7B:				
Sverdrup-----	90	Low	Low	Low
Clontarf-----	5	Moderate	Low	Low

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
J7B:				
Egeland-----	5	Low	Moderate	Low
J8A:				
Egeland-----	80	Low	Moderate	Low
Clontarf-----	10	Moderate	Low	Low
Sverdrup-----	5	Low	Low	Low
Arveson-----	3	High	High	Low
Hantho-----	2	High	Moderate	Low
J8B:				
Egeland-----	80	Low	Moderate	Low
Clontarf-----	8	Moderate	Low	Low
Sverdrup-----	5	Low	Low	Low
Torning-----	3	Moderate	Low	Low
Eckman-----	2	High	Low	Low
Egeland, eroded-----	2	Low	Moderate	Low
J9A:				
Estelline-----	90	Low	Moderate	Low
Soils that have a thin surface layer-----	10	Low	Moderate	Low
J10A:				
Sinai-----	90	High	High	Low
Fulda-----	10	High	High	Low
J10B:				
Sinai-----	90	High	High	Low
Fulda-----	10	High	High	Low
J11A:				
Vallers-----	85	High	High	Low
Parnell, depressional--	10	High	High	Low
Balaton-----	5	High	High	Low
J12A:				
Marysland-----	85	High	High	Low
Arveson-----	10	High	High	Low
Marysland, depressional	3	High	High	Low
Malachy-----	2	High	Low	Low
J13A:				
Oldham-----	90	High	Moderate	High
Colvin-----	5	High	High	Low

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
J13A: Vallars-----	5	High	High	Low
J14F: Esmond-----	85	Moderate	High	Low
Emrick-----	10	Moderate	High	Low
Heimdal-----	5	Moderate	High	Low
J15B: Eckman-----	80	High	Low	Low
Eckman, eroded-----	5	High	Low	Low
Egeland-----	5	Low	Moderate	Low
Hantho-----	5	High	Moderate	Low
Zell-----	5	High	High	Moderate
J16A: Friberg, depressional--	90	High	High	Low
Kerkhoven-----	10	High	High	Low
J17A: Quam, depressional----	90	High	High	Low
Colvin-----	5	High	High	Low
Vallars-----	5	High	High	Low
J18A: Malachy-----	85	High	Low	Low
Arveson-----	5	High	High	Low
Well drained soils----	5	Low	Moderate	Low
Clontarf-----	5	Moderate	Low	Low
J19A: Hecla-----	80	Moderate	Moderate	Low
Clontarf-----	10	Moderate	Low	Low
Sverdrup-----	5	Low	Low	Low
Hamar-----	3	Moderate	High	Low
Malachy-----	2	High	Low	Low
J20A: Clontarf-----	80	Moderate	Low	Low
Hecla-----	10	Moderate	Moderate	Low
Arveson-----	5	High	High	Low
Well drained soils----	5	Low	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
<b>J21A:</b>				
Hamar-----	85	Moderate	High	Low
Less sandy soils-----	8	Moderate	High	Low
Arveson-----	4	High	High	Low
Hecla-----	3	Moderate	Moderate	Low
<b>J22A:</b>				
Renshaw-----	85	Low	Moderate	Low
Fordtown-----	10	Low	Moderate	Low
Arvilla-----	3	Low	Moderate	Low
Fordville-----	2	Low	Moderate	Low
<b>J23A:</b>				
Lamoure-----	85	High	High	Moderate
Rauville-----	10	High	High	Moderate
La Prairie-----	5	Moderate	Moderate	Low
<b>J24F:</b>				
Buse-----	85	Moderate	Low	Low
Darnen-----	10	Moderate	High	Low
Barnes-----	5	Moderate	Moderate	Low
<b>J25A:</b>				
Rauville-----	90	High	High	Moderate
Lamoure-----	10	High	High	Moderate
<b>J26B:</b>				
Darnen-----	90	Moderate	High	Low
Hokans-----	5	Moderate	Moderate	Low
Lakepark-----	5	High	High	Low
<b>J27A:</b>				
Hantho-----	85	High	Moderate	Low
Eckman-----	5	High	Low	Low
Quam-----	5	High	High	Low
Rondell-----	3	High	High	Moderate
Tara-----	2	High	Moderate	Low
<b>J28A:</b>				
Vallers, bouldery-----	90	High	High	Low
Parnell, depressional--	10	High	High	Low

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
<b>J29A:</b>				
Cathro-----	90	High	High	Low
Colvin-----	5	High	High	Low
Vallers-----	5	High	High	Low
<b>J30A:</b>				
Tara-----	90	High	Moderate	Low
Balaton-----	5	High	High	Low
Byrne-----	3	Moderate	Low	Low
Quam-----	2	High	High	Low
<b>J31B:</b>				
Arvilla-----	45	Low	Moderate	Low
Sandberg-----	30	Low	Moderate	Low
Renshaw-----	10	Low	Moderate	Low
Sioux-----	10	Low	Low	Low
Fordtown-----	5	Low	Moderate	Low
<b>J32A:</b>				
Bigstone-----	80	High	High	Low
Urness-----	10	High	High	Low
Colvin-----	5	High	High	Low
Vallers-----	5	High	High	Low
<b>J33D2:</b>				
Sisseton, eroded-----	70	Moderate	High	Low
Heimdal, eroded-----	10	Moderate	High	Low
Esmond, eroded-----	10	Moderate	High	Low
Heimdal, slightly eroded-----	5	Moderate	High	Low
Emrick-----	5	Moderate	High	Low
<b>J34B:</b>				
Byrne-----	45	Moderate	Low	Low
Buse-----	35	Moderate	Low	Low
Buse, eroded-----	10	Moderate	Low	Low
Hokans-----	5	Moderate	Moderate	Low
Tara-----	5	High	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
<b>J35B:</b>				
Hokans-----	45	Moderate	Moderate	Low
Buse-----	30	Moderate	Low	Low
Barnes-----	10	Moderate	Moderate	Low
Buse, eroded-----	10	Moderate	Low	Low
Svea-----	5	Moderate	High	Low
<b>J36C2:</b>				
Buse, eroded-----	45	Moderate	Low	Low
Barnes, eroded-----	20	Moderate	Moderate	Low
Barnes, slightly eroded	10	Moderate	Moderate	Low
Buse, slightly eroded--	10	Moderate	Low	Low
Darnen-----	10	Moderate	High	Low
Langhei, eroded-----	5	Moderate	Low	Low
<b>J37D2:</b>				
Langhei, eroded-----	60	Moderate	Low	Low
Barnes, eroded-----	15	Moderate	Moderate	Low
Buse, eroded-----	10	Moderate	Low	Low
Darnen-----	10	Moderate	High	Low
Barnes, slightly eroded	5	Moderate	Moderate	Low
<b>J38B:</b>				
Zell-----	41	High	High	Moderate
Eckman-----	39	High	Low	Low
Zell, eroded-----	10	High	High	Moderate
Egeland-----	5	Low	Moderate	Low
Hantho-----	5	High	Moderate	Low
<b>J38C2:</b>				
Zell, eroded-----	45	High	High	Moderate
Eckman, eroded-----	20	High	Low	Low
Zell, slightly eroded--	15	High	High	Moderate
Hantho-----	10	High	Moderate	Low
Eckman, slightly eroded	5	High	Low	Low
Egeland-----	5	Low	Moderate	Low
<b>J39A:</b>				
Udorthents-----	100	---	---	---

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
<b>J40A:</b>				
Foxlake-----	85	High	High	Low
Audubon-----	5	Moderate	High	Low
Calcareous soils-----	5	High	High	Low
Soils in depressions---	5	High	High	Low
<b>J41A:</b>				
Urness-----	80	High	High	Low
Bigstone-----	10	High	High	Low
Colvin-----	5	High	High	Low
Vallers-----	5	High	High	Low
<b>J42C:</b>				
Sandberg-----	60	Low	Moderate	Low
Arvilla-----	30	Low	Moderate	Low
Everts-----	10	Moderate	High	Low
<b>J43A:</b>				
Quam, depressional-----	30	High	High	Low
Cathro-----	30	High	High	Low
Urness-----	30	High	High	Low
Colvin-----	5	High	High	Low
Vallers-----	5	High	High	Low
<b>J44B:</b>				
Esmond-----	45	Moderate	High	Low
Heimdal-----	40	Moderate	High	Low
Esmond, eroded-----	10	Moderate	High	Low
Emrick-----	5	Moderate	High	Low
<b>J44C2:</b>				
Esmond, eroded-----	40	Moderate	High	Low
Heimdal, eroded-----	25	Moderate	High	Low
Esmond, slightly eroded	15	Moderate	High	Low
Heimdal, slightly eroded-----	10	Moderate	High	Low
Emrick-----	5	Moderate	High	Low
Sisseton, eroded-----	5	Moderate	High	Low
<b>J45F:</b>				
Sandberg-----	80	Low	Moderate	Low
Everts-----	10	Moderate	High	Low

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
<b>J45F:</b>				
Arvilla-----	5	Low	Moderate	Low
Sioux-----	5	Low	Low	Low
<b>J46B:</b>				
Byrne-----	85	Moderate	Low	Low
Hokans-----	7	Moderate	Moderate	Low
Buse-----	5	Moderate	Low	Low
Quam-----	3	High	High	Low
<b>J47A:</b>				
Swenoda-----	85	Moderate	High	Moderate
Clontarf-----	10	Moderate	Low	Low
Egeland-----	5	Low	Moderate	Low
<b>J48A:</b>				
Bigstone-----	40	High	High	Low
Parnell-----	40	High	High	Low
Colvin-----	10	High	High	Low
Vallers-----	10	High	High	Low
<b>J49A:</b>				
Lakepark-----	50	High	High	Low
Parnell, depressional--	35	High	High	Low
Emrick-----	8	Moderate	High	Low
Vallers-----	7	High	High	Low
<b>J50A:</b>				
Balaton-----	45	High	High	Low
Tara-----	35	High	Moderate	Low
McIntosh-----	10	High	High	Low
Well drained soils-----	5	High	High	Low
Winger-----	5	High	High	Low
<b>J51A:</b>				
Bearden-----	60	High	High	Low
Quam, depressional-----	30	High	High	Low
Rondell-----	7	High	High	Moderate
Winger-----	3	High	High	Low
<b>J52A:</b>				
Rondell-----	85	High	High	Moderate
Zell-----	9	High	High	Moderate

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
J52A: Bearden-----	6	High	High	Low
J53A: Ortonville-----	85	High	High	Low
Well drained soils-----	10	High	High	Low
Vallers-----	5	High	High	Low
J54A: Marysland, depressional	90	High	High	Low
Marysland soils that are not ponded-----	10	High	High	Low
J55A: Sedgeville-----	90	High	High	Moderate
Soils that are frequently flooded----	10	High	High	Moderate
J56A: Winger-----	40	High	High	Low
Balaton-----	30	High	High	Low
Parnell, depressional--	20	High	High	Low
Colvin-----	5	High	High	Low
Vallers-----	5	High	High	Low
J57A: Balaton-----	85	High	High	Low
Well drained soils-----	5	High	High	Low
Tara-----	5	High	Moderate	Low
Vallers-----	5	High	High	Low
J58B: Torning-----	45	Moderate	Low	Low
Egeland-----	40	Low	Moderate	Low
Clontarf-----	10	Moderate	Low	Low
Sverdrup-----	5	Low	Low	Low
J59A: Urness, sandy substratum-----	90	High	High	Low
Marysland-----	10	High	High	Low
J60B: Hattie-----	46	Moderate	High	Low
Audubon-----	44	Moderate	High	Low
Foxlake-----	10	High	High	Low

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
<b>J60C:</b>				
Hattie-----	60	Moderate	High	Low
Audubon-----	30	Moderate	High	Low
Foxlake-----	10	High	High	Low
<b>J61A:</b>				
Svea, bouldery-----	90	Moderate	High	Low
Vallers, bouldery-----	5	High	High	Low
Parnell, depressional--	5	High	High	Low
<b>J62C:</b>				
Buse, very bouldery----	45	Moderate	Low	Low
Barnes, very bouldery--	25	Moderate	Moderate	Low
Hokans-----	15	Moderate	Moderate	Low
Svea, bouldery-----	10	Moderate	High	Low
Darnen-----	5	Moderate	High	Low
<b>J62F:</b>				
Buse, very bouldery----	50	Moderate	Low	Low
Barnes, very bouldery--	40	Moderate	Moderate	Low
Darnen-----	10	Moderate	High	Low
<b>J63A:</b>				
Ortonville-----	45	High	High	Low
Vallers-----	35	High	High	Low
Parnell, depressional--	20	High	High	Low
<b>J64A:</b>				
Quam-----	90	High	High	Low
Colvin-----	5	High	High	Low
Quam, depressional----	5	High	High	Low
<b>J65A:</b>				
Shakopee-----	90	Moderate	Moderate	Low
Soils in depressions---	10	Moderate	Moderate	Low
<b>J66A:</b>				
Emrick-----	85	Moderate	High	Low
Lakepark-----	10	High	High	Low
Heimdal-----	5	Moderate	High	Low
<b>J67A:</b>				
Fordtown-----	85	Low	Moderate	Low
Renshaw-----	8	Low	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and component name	Pct. of map unit	Potential for frost action	Risk of corrosion	
			Uncoated steel	Concrete
J67A: Spottswood-----	7	Low	Moderate	Low
J68A: Kerkhoven-----	55	High	High	Low
Friberg, depressional--	35	High	High	Low
Emrick-----	10	Moderate	High	Low
L33B: Kandiyohi-----	85	High	High	Low
Cosmos-----	10	High	High	Low
Okoboji-----	5	High	High	Low
L34A: Cosmos-----	85	High	High	Low
Kandiyohi-----	10	High	High	Low
Okoboji-----	5	High	High	Low
M-W: Water, miscellaneous---	100	---	---	---
W: Water-----	100	---	---	---



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# Glossary

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**Ablation till.** Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipyridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Aspect.** The direction in which a slope faces.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low .....	0 to 3
Low .....	3 to 6
Moderate .....	6 to 9
High .....	9 to 12
Very high .....	more than 12

**Backslope.** The position that forms the steepest and

generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

**Basal till.** Compact glacial till deposited beneath the ice.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

**Base slope.** A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

**Beach deposits.** Material, such as sand and gravel, that is generally laid down parallel to an active or relict shoreline of a postglacial or glacial lake.

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

**Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

**Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

**Blowout.** A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

**Bog.** Waterlogged, spongy ground, consisting

primarily of mosses, containing acidic, decaying vegetation (such as sphagnum, sedges, and heaths) that develops into peat.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

**Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

**Canopy.** The leafy crown of trees or shrubs. (See Crown.)

**Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

**Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Catsteps.** Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.

**Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

**Chemical treatment.** Control of unwanted vegetation through the use of chemicals.

**Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

**Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay,

less than 45 percent sand, and less than 40 percent silt.

**Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

**Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

**COLE (coefficient of linear extensibility).** See Linear extensibility.

**Colluvium.** Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

**Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and

practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Coprogenous earth (sedimentary peat).** Fecal material deposited in water by aquatic organisms.

**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.

**Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

**Crown.** The upper part of a tree or shrub, including the living branches and their foliage.

**Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Delta.** A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

**Depression.** Any relatively sunken part of the earth's surface; especially a low-lying area surrounded by higher ground. A closed depression has no natural outlet for surface drainage.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

**Disintegration moraine.** A drift topography characterized by chaotic mounds and pits, generally randomly oriented, developed in supraglacial drift by collapse and flow as the underlying stagnant ice melted. Slopes may be steep and unstable. Abrupt changes between materials of differing lithology are common.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Drainage class** (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Drainageway.** A relatively small, linear depression that, at some time, moves concentrated water and either does not have a defined channel or has only a small defined channel.

**Drumlin.** A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

**Duff.** A generally firm organic layer on the surface of

mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**End moraine.** A ridgelike accumulation that is being or was produced at the outer margin of an actively flowing glacier at any given time.

**Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

**Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

**Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

*Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

*Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

**Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

**Esker.** A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

**Fan terrace.** A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

**Fine textured soil.** Sandy clay, silty clay, or clay.

**Firebreak.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

**First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.

**Flaggy soil material.** Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

**Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

**Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

**Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

**Forb.** Any herbaceous plant not a grass or a sedge.

**Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.

**Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

**Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or

moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

**Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

**Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

**Geomorphology.** The science that treats the general configuration of the earth's surface; specifically, the study of the classification, description, nature, origin, and development of landforms and their relationships to underlying structures, and the history of geologic changes as recorded by these surface features. The term is especially applied to the genetic interpretation of landforms.

**Glacial drift.** Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

**Glacial outwash.** Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

**Glacial till.** Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

**Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

**Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

**Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.

**Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

**Gravel.** Rounded or angular fragments of rock as much as 3 inches (7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock

fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

**Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

**Ground water.** Water filling all the unblocked pores of the material below the water table.

**Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hard to reclaim** (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Head slope.** A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

**Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

**Herbaceous peat.** An accumulation of organic material, decomposed to some degree, that is predominantly the remains of sedges, reeds, cattails, and other herbaceous plants.

**High-chroma zones.** Zones having chroma of 3 or more. Typical color in areas of iron concentrations.

**High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

**Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter

represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

*A horizon.*—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*—Soft, consolidated bedrock beneath the soil.

*R layer.*—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**Ice-walled lake plain.** A relict surface marking the

floor of an extinct lake basin that was formed on solid ground and surrounded by stagnant ice in a stable or unstable superglacial environment on stagnation moraines. As the ice melted, the lake plain became perched above the adjacent landscape. The lake plain is well sorted, generally fine textured, stratified deposits.

**Igneous rock.** Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasesers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2 .....	very low
0.2 to 0.4 .....	low
0.4 to 0.75 .....	moderately low
0.75 to 1.25 .....	moderate
1.25 to 1.75 .....	moderately high
1.75 to 2.5 .....	high
More than 2.5 .....	very high

**Interfluve.** An elevated area between two drainageways that sheds water to those drainageways.

**Intermittent stream.** A stream, or reach of a stream,

that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron concentrations.** High-chroma zones having a high content of iron and manganese oxide because of chemical oxidation and accumulation, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic concentration.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

*Basin.*—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

*Border.*—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

*Controlled flooding.*—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Corrugation.*—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

*Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

*Subirrigation.*—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

*Wild flooding.*—Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Kame.** An irregular, short ridge or hill of stratified glacial drift.

**Kame moraine.** An end moraine that contains numerous kames. A group of kames along the

front of a stagnant glacier, commonly comprising the slumped remnants of a formerly continuous outwash plain built up over the foot of rapidly wasting or stagnant ice.

**Karst** (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

**Knoll.** A small, low, rounded hill rising above adjacent landforms.

**$K_{sat}$ .** Saturated hydraulic conductivity. (See Permeability.)

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Lake bed.** The bottom of a lake; a lake basin.

**Lake plain.** A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

**Lake terrace.** A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

**Lakeshore.** A narrow strip of land in contact with or bordering a lake; especially the beach of a lake.

**Lamella.** A thin (commonly less than 1 cm thick), discontinuous or continuous, generally horizontal layer of fine material (especially clay and iron oxides) that has been pedogenically concentrated (illuviated within a coarser textured eluviated layer several centimeters to several decimeters thick).

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Low strength.** The soil is not strong enough to support loads.

**Low-chroma zones.** Zones having chroma of 2 or less. Typical color in areas of iron depletions.

**Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

**Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Moraine.** An accumulation of earth, stones, and other

debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

**Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

**Mucky peat.** Unconsolidated soil material consisting primarily of organic matter that is in an intermediate stage of decomposition such that a significant part of the material can be recognized and a significant part of the material cannot be recognized.

**Mudstone.** Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**Nose slope.** A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low .....	less than 0.5 percent
Low .....	0.5 to 1.0 percent
Moderately low .....	1.0 to 2.0 percent
Moderate .....	2.0 to 4.0 percent
High .....	4.0 to 8.0 percent
Very high .....	more than 8.0 percent

**Outwash plain.** A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

**Paleoterrace.** An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

**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.

**Pedimentation.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The movement of water through the soil.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable .....	less than 0.0015 inch
Very slow .....	0.0015 to 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate .....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid .....	more than 20 inches

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Pitted outwash plain.** An outwash plain marked by many irregular depressions, such as kettles, shallow pits, and potholes, which formed by melting of incorporated ice masses; common in Wisconsin and Minnesota.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Potential native plant community.** See Climax plant community.

**Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**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

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a

change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

**Rise.** A slight increase in elevation of the land surface, typically with a broad summit and gently sloping sides.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

**Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sandstone.** Sedimentary rock containing dominantly sand-sized particles.

**Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

**Saprolite.** Unconsolidated residual material underlying the soil and grading to hard bedrock below.

**Saturated hydraulic conductivity ( $K_{sat}$ ).** See Permeability.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

**Second bottom.** The first terrace above the normal flood plain (or first bottom) of a river.

**Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

**Seepage** (in tables). The movement of water through the soil adversely affects the specified use.

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Shale.** Sedimentary rock formed by the hardening of a clay deposit.

**Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**Shoulder.** The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

**Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine

sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Sinkhole.** A depression in the landscape where limestone has been dissolved.

**Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Sloughed till.** Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and

sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt .....	0.05 to 0.002
Clay .....	less than 0.002

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Stagnation moraine.** A body of drift released by the melting of a glacier that ceased flowing. Commonly, but not always, occurs near ice margins; composed of till, ice-contact stratified drift, and small areas of glacial lake sediment. Typical landforms are knob-and-kettle topography, locally including ice-walled lake plains.

**Stone line.** A concentration of rock fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the

next crop, and during the early growing period of the new crop.

**Subsidence.** The potential decrease in surface elevation as a result of the drainage of wet soils that have organic layers or semifluid mineral layers. Subsidence, as a result of drainage, is attributed to (1) shrinkage from drying, (2) consolidation because of the loss of ground-water buoyancy, (3) compaction from tillage or manipulation, (4) wind erosion, (5) burning, and (6) biochemical oxidation.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter or loosen a layer that restricts roots.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.

**Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

**Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

**Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

**Swale.** A slight depression in the midst of generally level land. A shallow depression in an undulating ground moraine caused by uneven glacial deposition.

**Terminal moraine.** A belt of thick glacial drift that generally marks the termination of important glacial advances.

**Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace (geologic).** An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and

*clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

**Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.

**Till plain**. An extensive area of nearly level to undulating soils underlain by glacial till.

**Tilth, soil**. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toeslope**. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

**Topsoil**. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

**Trace elements**. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Upland**. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

**Valley fill**. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

**Variiegation**. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

**Water bars**. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

**Weathering**. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

**Well graded**. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

**Wilting point (or permanent wilting point)**. The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Windthrow**. The uprooting and tipping over of trees by the wind.

**Woody peat**. An accumulation of organic material that is predominantly composed of trees, shrubs, and other woody plants.