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Agriculture



Natural  
Resources  
Conservation  
Service

In cooperation with  
United States Department of  
Agriculture, Forest Service;  
Missouri Department of  
Natural Resources; Missouri  
Agricultural Experiment  
Station; Missouri Department  
of Conservation; and Madison  
County Soil and Water  
Conservation District

# Soil Survey of Madison County, Missouri



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# How To Use This Soil Survey

## General Soil Map

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

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

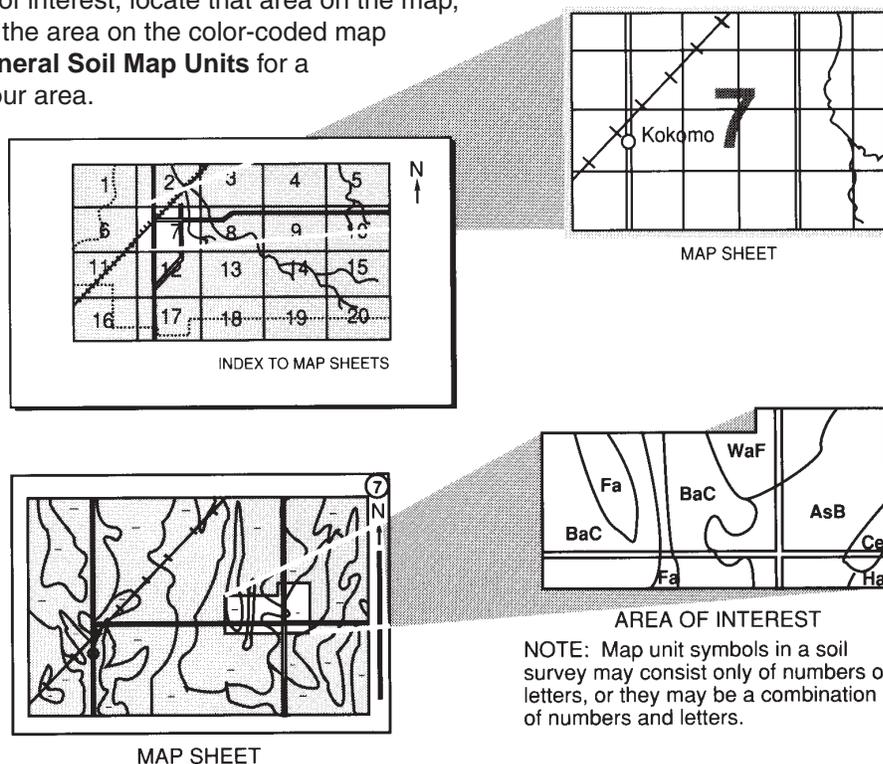
## Detailed Soil Maps

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

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

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

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



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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 1994. Soil names and descriptions were approved in 1995. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1994. This survey was made cooperatively by the Natural Resources Conservation Service; the United States Department of Agriculture, Forest Service; the Missouri Agricultural Experiment Station; and the Missouri Department of Conservation. The Missouri Department of Natural Resources provided soil scientists to assist with the fieldwork. The survey is part of the technical assistance furnished to the Madison County Soil and Water Conservation District.

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: Tiemann Shut-In at the upper end of the Millstream Garden Recreation Area on the St. Francis River. The soils in the Hassler-Syenite complex, 8 to 25 percent slopes, bouldery, formed in loamy colluvium and residuum weathered from granite.**

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

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

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# Soil Survey of Madison County, Missouri

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United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with  
United States Department of Agriculture, Forest Service; Missouri Department of Natural Resources; Missouri Agricultural Experiment Station; Missouri Department of Conservation; and the Madison County Soil and Water Conservation District

MADISON COUNTY is in the southeastern part of Missouri, about 60 miles south of St. Louis and 35 miles west of the Mississippi River (fig. 1). It is on the eastern flank of the St. Francis Mountains. It is bordered on the east by Perry and Bollinger Counties, on the south by Bollinger and Wayne Counties, on the west by Iron County, and on the north by St. Francois County. The total area of the county is 318,617 acres, or approximately 498 square miles.

Fredericktown, the county seat, is located near the intersection of U.S. Highway 67 and Missouri Highway 72 in the north-central part of the county. According to the 1990 census, Fredericktown has a population of 3,950, and Madison County has a population of 11,127.

## General Nature of the County

This section describes climate; history and development; transportation; agriculture; and physiography, relief, and drainage.

## Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Fredericktown in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 31.8 degrees F and the average daily minimum



Figure 1.—Location of Madison County in Missouri.

temperature is 20 degrees. The lowest temperature on record, which occurred on January 11, 1977, is -24 degrees. In summer, the average temperature is 74.5 degrees and the average daily maximum temperature is 88 degrees. The highest recorded temperature, which occurred on August 1, 1980, is 109 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that

the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 43.45 inches. Of this, 19.22 inches, or 44 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 6.10 inches on June 30, 1957. Thunderstorms occur on about 46 days each year, and most occur between May and August.

The average seasonal snowfall is 14.8 inches. The greatest snow depth at any one time during the period of record was 13 inches recorded on February 4, 1982. On the average, 18 days of the year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 12 inches recorded on February 25, 1979.

The average relative humidity in midafternoon is about 59 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 67 percent of the time possible in summer and 49 percent in winter. The prevailing wind is from the south between May and November and from the northwest the remainder of the year. Average windspeed is highest, around 11 miles per hour, from January to April.

## History and Development

Numerous artifact concentrations on terraces along major streams in the survey area confirm the presettlement presence of Native Americans. Major streams in the area provided trade routes, food, and campsites for the Indians as well as the early settlers. Evidence of campsites is prevalent on Secesh and Bearthicket soils. The hunting range of the Osage Tribe extended into the Madison County area. Native Americans of the Osage Tribe were protective of their hunting range and would defend it even to the point of death. As a result of encroachment on their hunting grounds, the Native Americans retaliated by stealing livestock, particularly horses. Eventually they were pushed from the area.

The first Europeans to enter this area were French explorers looking for surface deposits of ore minerals. Between 1701 and 1720, De La Motte Cadillac, and later Renault and several companions, found lead ore concentrations in sedimentary bedrock near the contact with igneous rock, but didn't find anticipated associated silver deposits. Lead mining began at Mine La Motte in approximately 1720. The chimney from a

lead-smelting furnace that was built in 1739 still stands in a field near the mines (fig. 2). It is the oldest surviving structure built by European immigrants in Missouri. The first farmer to settle in the area was John Callaway from Kentucky, who in 1799 was granted land along Saline Creek.

Madison County was organized in 1818 and was named in honor of President James Madison. The first town in the area was St. Michaels. It was established in 1799 by 13 French-Canadian families who settled there to mine lead and to farm. St. Michaels was the first county seat of Madison County; however, in 1819 the county seat was moved to Fredericktown, which was just across Saline Creek from St. Michaels.

The lead from the early mines was transported to St. Marys on the banks of the Mississippi River by mule along the Three Notch Road. The road was marked by three notches blazed on trees along its length. The economy of the county during much of its post-settlement history depended on the ups and downs of the mines, until the last of the mines closed in the 1950s. When the mines closed, the Brown Shoe Company opened a factory which bolstered the local economy. Although it recently closed, there is a continuing effort to attract other industry to the area.

## Transportation

Several Indian trails intersected near where Fredericktown was established, including the Nacogdoches Trail that terminated in what is now Texas. The Three Notch Road was the first road west of the Mississippi River that was laid out by white settlers. One trail across Madison County was used by part of the Cherokee Nation in 1838 and 1839 during their forced evacuation from their ancestral home in North Carolina to the Oklahoma territory. It is now called the Trail of Tears. The St. Louis and Iron Mountain Railroad hauled lead ingots out of Madison County during the peak times of mining operations. The railroad was discontinued after mining ceased in the 1950s.

Presently, U.S. Highway 67 crosses Madison County from north to south, and Missouri Highway 72 crosses the county from east to west. Numerous county hard surface roads link the major highways with all parts of the county. An airport with a hard surface runway is located near Fredericktown.

## Agriculture

Clearing of the forests began in the early 1800s with the first European settlers in the river valleys and the Fredericktown Basin. Several decades ago



**Figure 2.—This chimney of a lead smelter, built in 1720, is on the Crider-Fourche-Caneyville soil association in the Fredericktown Basin. It is the oldest surviving structure west of the Mississippi River built by European immigrants.**

significant acreages of corn and wheat were grown in the county. At the present time, very few acres in the county are devoted to annual crops. The cleared land is used to produce grass or grass and legume mixtures for pasture and hay. Beef cattle consumes nearly all of the pasture and hay. There are a few large hog operations in the county. Many of the farmers in the county supplement their incomes with off-farm employment.

Nearly 70 percent of the county is used for timber production. The harvesting of saw logs, primarily oak, is an important segment of the local economy. Nearly all of the logs are processed locally into ties and pallet lumber.

### **Physiography, Relief, and Drainage**

Madison County is located within the Ozark Plateau physiographic province. The survey area is further subdivided into the St. Francois Mountains on the western side of the county and the Salem Plateau on the eastern side of the county.

The St. Francois Mountains are part of an igneous uplift that began about 1.5 billion years ago. The Salem Plateau in this survey area is underlain by Cambrian age rock, which is about 550 million years old. It is the oldest sedimentary rock in the state. No other county in Missouri has older rock exposed at the surface over the entire county than Madison.

The highest elevation in the county is about 1,400 feet on the top of a few mountains on the west side. The lowest elevation is about 440 feet where the St. Francis River flows out of the county. Local relief in the mountains generally is 200 to 300 feet. The Salem Plateau is a distinct regional base level that is about 300 to 400 feet below the higher mountain peaks. Local relief on the Salem Plateau is less than it is in the mountains, averaging about 200 feet.

Two major drainage systems flow out of the south side of Madison County. The St. Francis River drainage system drains the St. Francis Mountains and the western part of the Salem Plateau. The Castor River drainage system drains the eastern side of the county.

### **How This Survey Was Made**

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the

slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

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

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

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

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

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

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

Table 1.--Temperature and Precipitation  
(Recorded in the period 1961-90 at Fredericktown, Missouri)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
°F	°F	°F	°F	°F	Units	In	In	In	In	In	
January-----	40.7	17.1	28.9	70	-13	4	2.35	0.90	3.56	4	5.0
February-----	45.3	20.7	33.0	73	-8	10	2.58	1.38	3.63	5	3.8
March-----	56.9	31.5	44.2	83	6	70	4.43	2.47	6.16	7	2.4
April-----	68.9	41.9	55.4	90	19	220	4.29	2.20	6.11	6	0.2
May-----	77.2	49.7	63.4	91	29	420	4.49	2.29	6.41	6	0.0
June-----	85.5	58.8	72.2	98	40	665	3.55	2.10	4.85	5	0.0
July-----	90.3	63.3	76.8	102	40	832	3.48	1.53	5.14	4	0.0
August-----	88.4	60.8	74.6	102	43	757	4.25	1.97	6.22	5	0.0
September---	80.8	53.3	67.1	96	32	515	3.45	1.27	5.26	5	0.0
October-----	70.0	39.9	55.0	89	20	210	2.73	0.98	4.19	5	0.0
November----	57.2	32.2	44.7	80	9	63	3.92	1.71	5.80	5	0.8
December----	44.5	22.4	33.5	70	-5	10	3.93	1.74	5.81	5	2.6
Yearly:											
Average---	67.2	41.0	54.1	---	---	---	---	---	---	---	---
Extreme---	109	-24	---	103	-15	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,777	43.45	35.27	51.21	62	14.8

\* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall  
 (Recorded in the period 1961-90 at Fredericktown, Missouri)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 17	April 30	May 13
2 years in 10 later than--	April 11	April 24	May 8
5 years in 10 later than--	April 1	April 14	April 27
First freezing temperature in fall:			
1 year in 10 earlier than--	October 10	September 30	September 26
2 years in 10 earlier than--	October 16	October 5	September 29
5 years in 10 earlier than--	October 29	October 15	October 6

Table 3.--Growing Season

(Recorded in the period 1961-90 at Fredericktown, Missouri)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	186	161	143
8 years in 10	195	168	149
5 years in 10	211	183	161
2 years in 10	228	197	173
1 year in 10	237	205	179



# General Soil Map Units

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

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

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other

structure. The soils in any one association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

## Soil Descriptions

### 1. Clarksville-Poynor-Firebaugh Association

**Extent of the association in the survey area:**  
44 percent of the survey area

**Composition:**

Clarksville, Scholten, and similar soils—53 percent  
Poynor and similar soils—20 percent  
Firebaugh and similar soils—17 percent  
Minor soils—10 percent (Alred, Gepp, and Tilk)

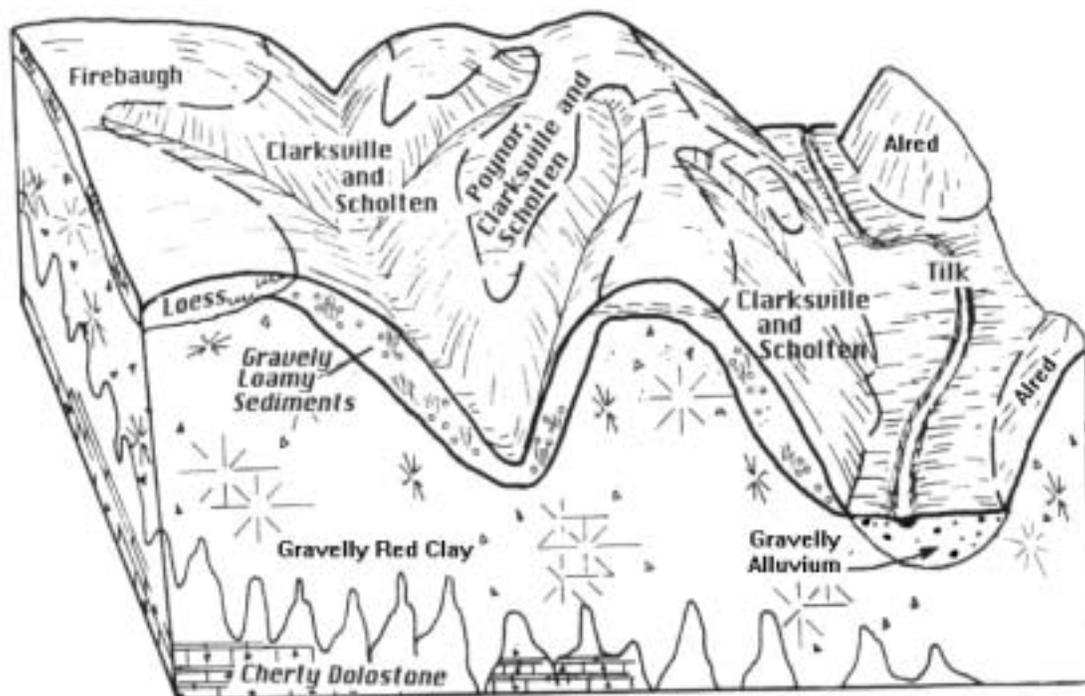


Figure 3.—Typical pattern of soils and parent material in the Clarksville-Poynor-Firebaugh association.

**Landscape:**

Clarksville and Scholten—steep side slopes and narrow ridgetops  
 Poynor—shoulder slopes  
 Firebaugh—ridgetops (fig. 3)

**Parent materials:**

Clarksville and Scholten—hillslope sediments and the underlying clayey residuum from cherty dolostone  
 Poynor—colluvium from cherty dolostone and the underlying residuum from dolostone  
 Firebaugh—thin layer of loess or silty sediment and the underlying loamy and clayey residuum weathered from cherty dolostone

**Slope range:**

3 to 45 percent

**Major land uses:**

Woodland; pasture and hayland

**Special feature:**

Scholten soils, which have a fragipan, occur only in conjunction with Clarksville soils in the survey area

## 2. Irondale-Killarney-Trackler Association

### **Extent of the association in the survey area:**

19 percent of the survey area

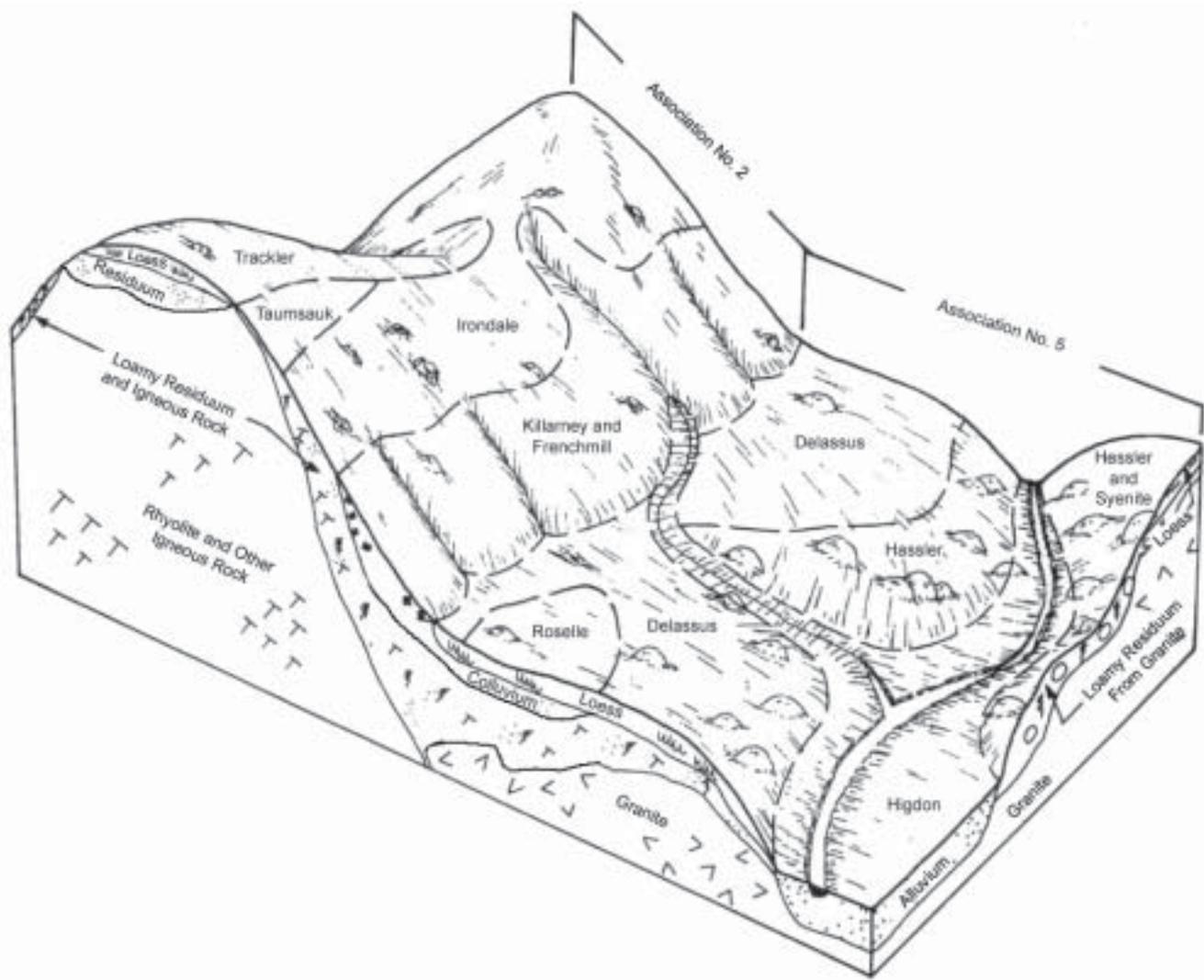


Figure 4.—Typical pattern of soils and parent material in the Irondale-Killarney-Trackler association and the Delassus-Hassler-Roselle association.

**Composition:**

Irondale and similar soils—42 percent  
 Killarney, Frenchmill, and similar soils—25 percent  
 Trackler and similar soils—18 percent  
 Minor soils—15 percent (Delassus, Frenchmill, and Taumsauk)

**Landscape:**

Irondale—shoulders and backslopes  
 Killarney—lower backslopes and footslopes  
 Trackler—summits and shoulders (fig. 4)

**Parent materials:**

Irondale—residuum from fine-grained igneous rock  
 Killarney—colluvial materials from loess and rhyolite or granite  
 Trackler—loamy colluvium and residuum from fine-grained igneous rocks, predominantly rhyolite

**Slope range:**

3 to 45 percent

**Major land uses:**

Woodland; pasture and hayland

**3. Tilk-Secesh-Cornwall Association****Extent of the association in the survey area:**

18 percent of the survey area

**Composition:**

Tilk and similar soils—48 percent  
 Secesh and similar soils—23 percent  
 Cornwall and similar soils—19 percent  
 Minor soils—10 percent (Deible, Higdon, and Racoon)

**Landscape:**

Tilk—low stream terraces  
 Secesh—low stream terraces and footslopes  
 Cornwall—high terraces, valley footslopes, and intravalley ridge points

**Parent materials:**

Tilk—loamy and sandy alluvium with a high content of rock fragments  
 Secesh—loamy and gravelly alluvium  
 Cornwall—loess and valley fill materials

**Slope range:**

0 to 8 percent

**Major land uses:**

Pasture and hayland; cropland

**4. Crider-Fourche-Caneyville Association****Extent of the association in the survey area:**

8 percent of the survey area

**Composition:**

Crider and similar soils—41 percent  
 Fourche and similar soils—22 percent  
 Caneyville and similar soils—19 percent  
 Minor soils—18 percent (Cornwall, Gasconade, and Higdon)

**Landscape:**

Crider—summits  
 Fourche—side slopes and point ridges  
 Caneyville—summits, shoulders, or backslopes (fig. 5)

**Parent materials:**

Crider—loess and the underlying residuum from dolostone  
 Fourche—loess and the underlying residuum from dolostone  
 Caneyville—residuum from dolostone

**Slope range:**

3 to 25 percent

**Major land uses:**

Pasture and hayland

**5. Delassus-Hassler-Roselle Association****Extent of the association in the survey area:**

8 percent of the survey area

**Composition:**

Delassus and similar soils—35 percent  
 Hassler and similar soils—26 percent  
 Roselle and similar soils—23 percent  
 Minor soils—16 percent (Frenchmill, Higdon, Loughboro, and Syenite)

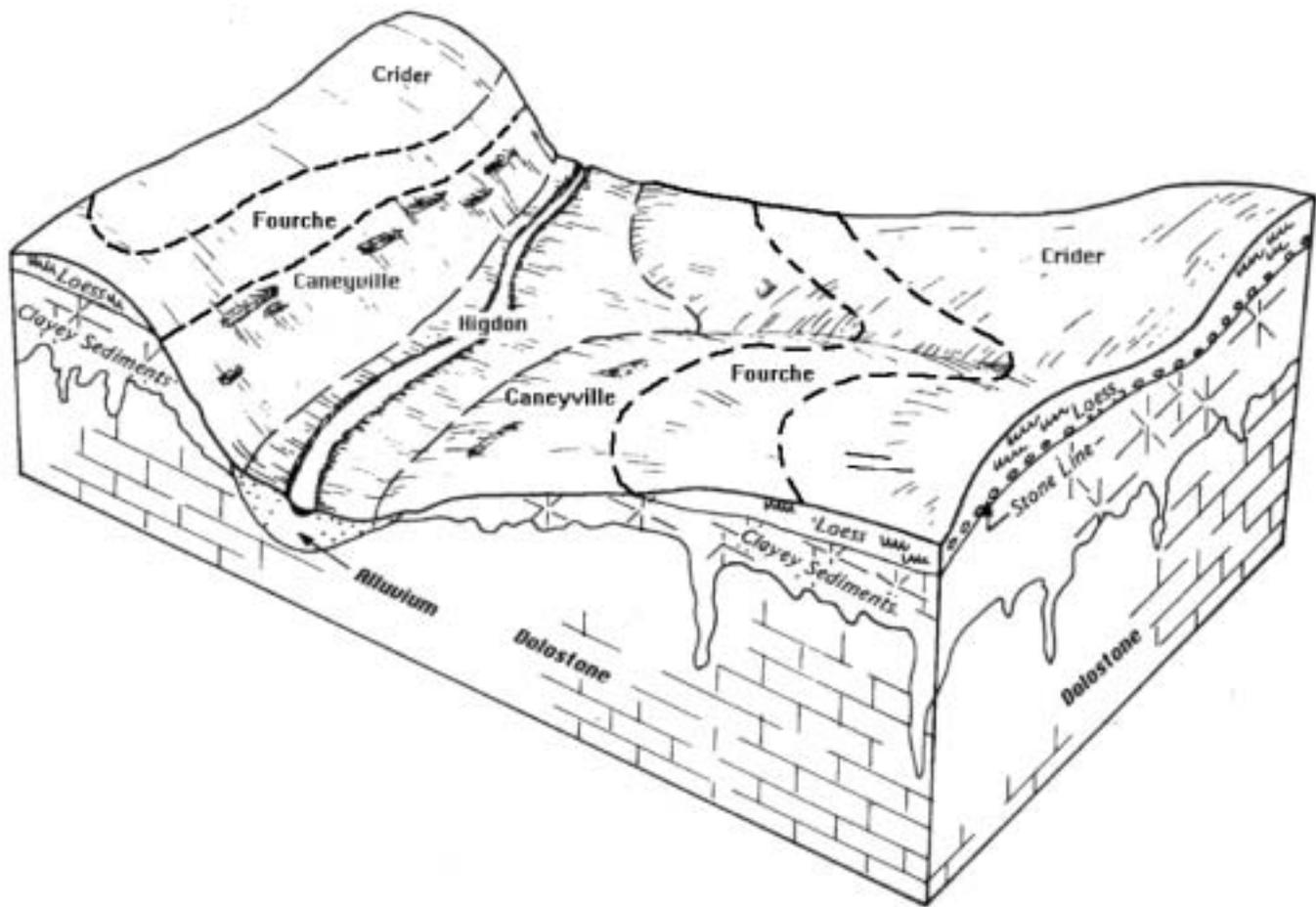


Figure 5.—Typical pattern of soils and parent material in the Crider-Fourche-Caneyville association.

**Landscape:**

Delassus—summits and footslopes  
 Hassler—summits, shoulders, or backslopes  
 Roselle—benches and backslopes in the intermountain basins (fig. 4)

**Parent materials:**

Delassus—loess and the underlying residuum or colluvium from granite  
 Hassler—loamy colluvium and residuum weathered from granite  
 Roselle—colluvium and alluvium derived from granite

**Slope range:**

3 to 35 percent

**Major land uses:**

Woodland; pasture and hayland

**Special feature:**

Frenchmill soils occur only in conjunction with Killarney soils in the survey area

**6. Lily-Ramsey-Jonca Association**

**Extent of the association in the survey area:**

3 percent of the survey area

**Composition:**

Lily and similar soils—46 percent  
 Ramsey and similar soils—27 percent  
 Jonca and similar soils—21 percent  
 Minor soils—6 percent

**Landscape:**

Lily—summits and shoulders  
 Ramsey—summits, shoulders, or backslopes  
 Jonca—summits (fig. 6)

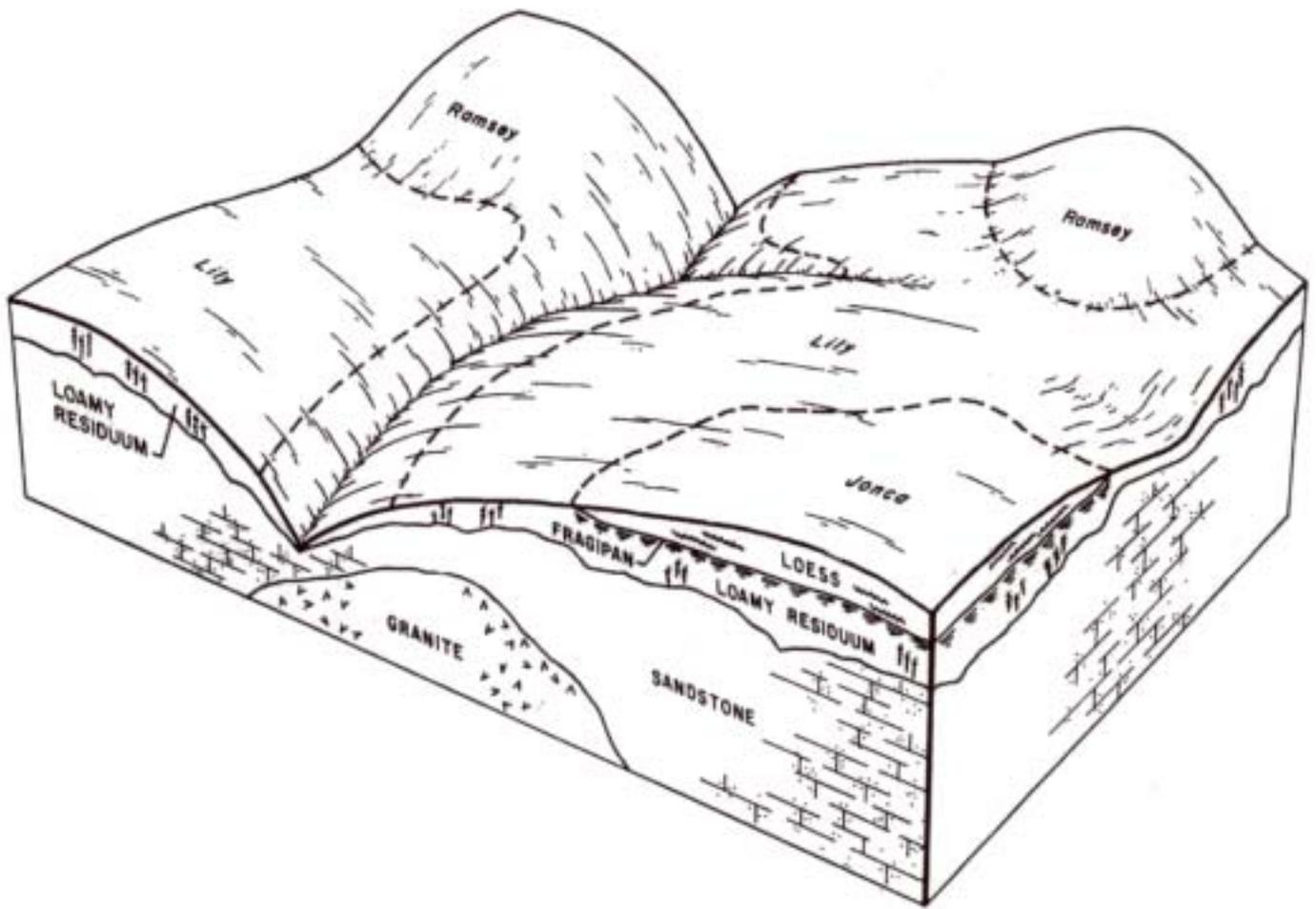


Figure 6.—Typical pattern of soils and parent material in the Lily-Ramsey-Jonca association.

**Parent materials:**

- Lily—residuum from sandstone
- Ramsey—residuum from sandstone
- Jonca—thin layer of loess and the underlying loamy residuum from sandstone

**Slope range:**

3 to 25 percent

**Major land uses:**

Pasture and hayland; woodland



## Detailed Soil Map Units

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The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

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

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

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit.

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Fourche silt loam, 3 to 8 percent slopes, is a phase of the Fourche series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Clarksville-Scholten complex, 15 to 45 percent slopes, very stony, is an example.

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

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the

terms used in describing the soils or miscellaneous areas.

## Soil Descriptions

### 73055—Alred-Rueter complex, 15 to 35 percent slopes, very stony

#### Setting

*Landform:* Alred—upland; Rueter—steep side slope and narrow ridgetop

*Position on the landform:* Backslope

*Parent material:* Alred—cherty hillslope sediments and the underlying clayey residuum; Rueter—local colluvium

#### Composition

Alred and similar soils—45 percent

Rueter and similar soils—35 percent

Minor components—20 percent

Gepp soils

Very deep, fine-loamy soils

Very deep, loamy soils with a high content of sandstone fragments

Very deep, clayey soils with a high content of chert fragments

#### Typical Profile

##### Alred

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 7 inches; very gravelly silt loam

E—7 to 11 inches; very gravelly silt loam

Bt—11 to 30 inches; very gravelly silt loam

2Bt—30 to 80 inches; cobbly clay

##### Rueter

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; very gravelly silt loam

E—4 to 17 inches; gravelly silt loam

Bt—17 to 32 inches; very gravelly silt loam

2Bt—32 to 43 inches; very gravelly silty clay

3Bt—43 to 71 inches; very cobbly clay

#### Soil Properties and Qualities

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

*Drainage class:* Alred—well drained; Rueter—somewhat excessively drained

*Permeability:* Alred—moderate in the upper part and slow in the lower part (0.6-2.0 and 0.06-0.2 inches/hour); Rueter—moderate (0.6-2.0 inches/hour)

*Available water capacity:* Low (3 to 6 inches)

*Shrink-swell potential:* Moderate (3 to 6 percent)

*Flooding:* None

*Water table:* None

### 73139—Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony

#### Setting

*Landform:* Poynor, Clarksville, and Scholten—upland

*Position on the landform:* Shoulder

*Parent material:* Poynor—gravelly colluvium weathered from cherty dolostone and the underlying clayey residuum weathered from shale; Clarksville—hillslope sediments and the underlying clayey residuum from cherty dolostone; Scholten—colluvium or hillslope sediments and the underlying residuum weathered from cherty dolostone

#### Composition

Poynor and similar soils—35 percent

Clarksville and similar soils—32 percent

Scholten and similar soils—15 percent

Minor components—18 percent

Firebaugh soils

Very deep, fine-loamy soils

Very deep, clayey soils

Very deep, clayey soils with a high content of chert fragments

#### Typical Profile

##### Poynor

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; gravelly silt loam

E—4 to 13 inches; very gravelly silt loam

Bt—13 to 24 inches; very gravelly silty clay loam

2Bt—24 to 80 inches; clay

##### Clarksville

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 5 inches; gravelly silt loam

E—5 to 8 inches; gravelly silt loam

Bt—8 to 18 inches; very gravelly loam

2Bt—18 to 42 inches; very gravelly loam

3Bt—42 to 65 inches; clay

##### Scholten

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 3 inches; gravelly silt loam

E—3 to 8 inches; gravelly silt loam

Bt—8 to 17 inches; very gravelly silty clay loam

2Btx—17 to 41 inches; very gravelly silt loam

3Bt—41 to 80 inches; gravelly clay

### **Soil Properties and Qualities**

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

*Drainage class:* Poynor—well drained; Clarksville—somewhat excessively drained; Scholten—moderately well drained

*Permeability:* Poynor and Clarksville—moderate (0.6-2.0 inches/hour); Scholten—moderate above the fragipan, very slow in the fragipan, and moderately rapid below the fragipan (0.6-2.0, 0.01-0.06, and 2.0-6.0 inches/hour)

*Available water capacity:* Poynor and Clarksville—low (3 to 6 inches); Scholten—very low (0 to 3 inches)

*Shrink-swell potential:* Poynor—moderate (3 to 6 percent); Clarksville and Scholten—low (0 to 3 percent)

*Flooding:* None

*Water table:* None

## **73140—Clarksville-Scholten complex, 15 to 45 percent slopes, very stony**

### **Setting**

*Landform:* Clarksville—steep side slope and narrow ridgetop; Scholten—upland

*Position on the landform:* Backslope

*Parent material:* Clarksville—hillslope sediments and the underlying clayey residuum from cherty dolostone; Scholten—colluvium or hillslope sediments and the underlying residuum weathered from cherty dolostone

### **Composition**

Clarksville and similar soils—50 percent

Scholten and similar soils—30 percent

Minor components—20 percent

Poynor soils

Tilk soils

Very deep, fine-loamy soils

Very deep, clayey soils

### **Typical Profile**

#### **Clarksville**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 6 inches; gravelly silt loam

E—6 to 13 inches; gravelly silt loam

Bt—13 to 21 inches; very gravelly silt loam

2Bt—21 to 43 inches; extremely gravelly clay loam

3Bt—43 to 66 inches; very gravelly clay

#### **Scholten**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 6 inches; very gravelly silt loam

E—6 to 13 inches; very gravelly silt loam

Bt—13 to 34 inches; extremely gravelly clay loam

2Btx—34 to 58 inches; very gravelly loam

3Bt—58 to 80 inches; very gravelly clay

### **Soil Properties and Qualities**

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

*Drainage class:* Clarksville—somewhat excessively drained; Scholten—moderately well drained

*Permeability:* Clarksville—moderate (0.6-2.0 inches/hour); Scholten—moderate above the fragipan, very slow in the fragipan, and moderately rapid below the fragipan (0.6-2.0, 0.01-0.06, and 2.0-6.0 inches/hour)

*Available water capacity:* Low (3 to 6 inches)

*Shrink-swell potential:* Low (0 to 3 percent)

*Flooding:* None

*Water table:* None

## **73141—Firebaugh silt, 3 to 8 percent slopes**

### **Setting**

*Landform:* Ridgetop

*Position on the landform:* Summit

*Parent material:* Thin layer of loess or silty sediment and the underlying loamy and clayey residuum weathered from cherty dolostone

### **Composition**

Firebaugh and similar soils—90 percent

Minor components—10 percent

Clarksville soils

Scholten soils

Very deep, clayey soils

### **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; silt

E—4 to 8 inches; silt

Bt—8 to 21 inches; silty clay loam

2Btx—21 to 36 inches; very gravelly silt loam

3Bt—36 to 71 inches; extremely cobbly clay

### **Soil Properties and Qualities**

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

*Drainage class:* Moderately well drained

*Permeability:* Moderate in the upper part and slow in the lower part (0.6-2.0 and 0.06-0.2 inches/hour)

*Available water capacity:* Moderate (6 to 9 inches)

*Shrink-swell potential:* Moderate (3 to 6 percent)

*Flooding:* None

*Water table:* 18 to 26 inches

### **73142—Firebaugh silt loam, 8 to 15 percent slopes**

#### **Setting**

*Landform:* Ridgetop and side slope

*Position on the landform:* Shoulder

*Parent material:* Thin layer of loess or silty sediment and the underlying loamy and clayey residuum weathered from cherty dolostone

#### **Composition**

Firebaugh and similar soils—90 percent

Minor components—10 percent

Clarksville soils

Very deep, clayey soils

#### **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; silt loam

E—4 to 11 inches; silt loam

Bt—11 to 28 inches; silty clay loam

2Btx—28 to 39 inches; very gravelly silt loam

3Bt—39 to 71 inches; gravelly clay loam

#### **Soil Properties and Qualities**

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

*Drainage class:* Moderately well drained

*Permeability:* Moderate in the upper part and slow in the lower part (0.6-2.0 and 0.06-0.2 inches/hour)

*Available water capacity:* Moderate (6 to 9 inches)

*Shrink-swell potential:* Moderate (3 to 6 percent)

*Flooding:* None

*Water table:* 18 to 26 inches

### **73143—Courtois silt loam, 3 to 8 percent slopes**

#### **Setting**

*Landform:* Upland basins and valley slopes

*Position on the landform:* Summit

*Parent material:* Loess and red clayey materials

#### **Composition**

Courtois and similar soils—85 percent

Minor components—15 percent

Fourche soils

Rock outcrop

Very deep, clayey soils with a high content of chert fragments

Wet, seepy areas

#### **Typical Profile**

Ap—0 to 7 inches; silt loam

Bt—7 to 15 inches; silty clay loam

2Bt—15 to 32 inches; silty clay

3Bt—32 to 80 inches; gravelly clay

#### **Soil Properties and Qualities**

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

*Drainage class:* Well drained

*Permeability:* Moderate (0.6-2.0 inches/hour)

*Available water capacity:* Moderate (6 to 9 inches)

*Shrink-swell potential:* Moderate (3 to 6 percent)

*Flooding:* None

*Water table:* None

### **73144—Courtois silt loam, 8 to 15 percent slopes**

#### **Setting**

*Landform:* Upland basins and valley slopes

*Position on the landform:* Backslope, footslope, or shoulder

*Parent material:* Loess and red clayey materials

#### **Composition**

Courtois and similar soils—85 percent

Minor components—15 percent

Caneyville soils

Gepp soils

Rock outcrop

Very deep, clayey soils with a high content of chert fragments

Wet, seepy areas

#### **Typical Profile**

Ap—0 to 7 inches; silt loam

Bt—7 to 15 inches; silty clay loam

2Bt—15 to 32 inches; silty clay

3Bt—32 to 80 inches; gravelly clay

#### **Soil Properties and Qualities**

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

*Drainage class:* Well drained

*Permeability:* Moderate (0.6-2.0 inches/hour)

*Available water capacity:* Moderate (6 to 9 inches)

*Shrink-swell potential:* Moderate (3 to 6 percent)

*Flooding:* None

*Water table:* None

**73145—Crider silt loam, 3 to 8 percent slopes, eroded****Setting**

*Landform:* Upland  
*Position on the landform:* Summit  
*Parent material:* Loess and the underlying residuum from dolostone

**Composition**

Crider and similar soils—90 percent  
 Minor components—10 percent  
     Caneyville soils  
     Fourche soils  
     Rock outcrop

**Typical Profile**

Ap—0 to 8 inches; silt loam  
 Bt—8 to 32 inches; silty clay loam  
 2Bt—32 to 74 inches; silty clay loam

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability:* Moderate (0.6-2.0 inches/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* Moderate (3 to 6 percent)  
*Flooding:* None  
*Water table:* None

**73146—Marquand silt loam, 3 to 8 percent slopes****Setting**

*Landform:* Valley (fig. 7)  
*Position on the landform:* High stream terrace and footslope  
*Parent material:* Silty and loamy sediments derived from loess, colluvium, and alluvium

**Composition**

Marquand and similar soils—90 percent  
 Minor components—10 percent  
     Bearthicket soils  
     Cornwall soils  
     Higdon soils

**Typical Profile**

Ap—0 to 5 inches; silt loam  
 E—5 to 8 inches; silt loam  
 Bt—8 to 22 inches; silty clay loam  
 2Bt—22 to 43 inches; silty clay loam  
 3Bt—43 to 80 inches; silty clay loam

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* 24 to 30 inches

**73147—Fourche silt loam, 3 to 8 percent slopes****Setting**

*Landform:* Upland side slope and ridge point  
*Position on the landform:* Summit  
*Parent material:* Loess and the underlying residuum from dolostone

**Composition**

Fourche and similar soils—90 percent  
 Minor components—10 percent  
     Crider soils  
     Higdon soils  
     Very deep, fine-silty soils that have a fragipan

**Typical Profile**

Ap—0 to 6 inches; silt loam  
 Bt—6 to 30 inches; silty clay loam  
 2Bt—30 to 54 inches; silty clay loam  
 3Bt—54 to 66 inches; clay

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* 24 to 36 inches

**73148—Jonca silt loam, 3 to 8 percent slopes****Setting**

*Landform:* Upland  
*Position on the landform:* Summit  
*Parent material:* Thin layer of loess and the underlying loamy residuum weathered from sandstone

**Composition**

Jonca and similar soils—90 percent



Figure 7.—An area of Marquand silt loam, 3 to 8 percent slopes, with switchgrass growing on Conservation Reserve Program acres.

Minor components—10 percent  
 Lily soils  
 Deep, fine-loamy soils

#### **Typical Profile**

Ap—0 to 5 inches; silt loam  
 E—5 to 12 inches; silt loam  
 Bt—12 to 32 inches; silty clay loam  
 2Btx—32 to 52 inches; fine sandy loam  
 3Bt—52 to 62 inches; clay loam  
 3R—62 inches; bedrock

#### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained

*Permeability:* Moderate above the fragipan and slow within the fragipan (0.6-2.0 and 0.06-0.2 inches/hour)

*Available water capacity:* Moderate (6 to 9 inches)

*Shrink-swell potential:* Low (0 to 3 percent)

*Flooding:* None

*Water table:* 24 to 36 inches

#### **73149—Caneyville-Bucklick complex, 3 to 8 percent slopes**

#### **Setting**

*Landform:* Upland

*Position on the landform:* Summit

*Parent material:* Caneyville—residuum from dolostone; Bucklick—loess and the underlying clayey materials or residuum from dolostone

### **Composition**

Caneyville and similar soils—50 percent  
Bucklick and similar soils—35 percent  
Minor components—15 percent  
Crider soils  
Gasconade soils  
Rock outcrop

### **Typical Profile**

#### **Caneyville**

Ap—0 to 4 inches; silt loam  
Bt—4 to 29 inches; silty clay  
R—29 inches; bedrock

#### **Bucklick**

Ap—0 to 5 inches; silt loam  
Bt—5 to 30 inches; silty clay  
2Bt—30 to 46 inches; clay  
2R—46 inches; bedrock

### **Soil Properties and Qualities**

*Depth to bedrock:* Caneyville—moderately deep (20 to 40 inches); Bucklick—deep or very deep (40 to 60 or more inches)

*Drainage class:* Well drained

*Permeability:* Caneyville—moderately slow (0.2-0.6 inch/hour); Bucklick—moderate (0.6-2.0 inches/hour)

*Available water capacity:* Low (3 to 6 inches)

*Shrink-swell potential:* Moderate (3 to 6 percent)

*Flooding:* None

*Water table:* None

### **73150—Caneyville-Bucklick complex, 8 to 15 percent slopes, rocky**

#### **Setting**

*Landform:* Upland

*Position on the landform:* Shoulder

*Parent material:* Caneyville—residuum from dolostone; Bucklick—loess and the underlying clayey materials or residuum from dolostone

### **Composition**

Caneyville and similar soils—50 percent  
Bucklick and similar soils—35 percent  
Minor components—15 percent  
Crider soils

Gasconade soils  
Gepp soils  
Rock outcrop

### **Typical Profile**

#### **Caneyville**

Ap—0 to 8 inches; silt loam  
Bt—8 to 30 inches; clay  
R—30 inches; bedrock

#### **Bucklick**

Ap—0 to 3 inches; silt loam  
Bt—3 to 16 inches; silty clay  
2Bt—16 to 45 inches; clay  
2R—45 inches; bedrock

### **Soil Properties and Qualities**

*Depth to bedrock:* Caneyville—moderately deep (20 to 40 inches); Bucklick—deep or very deep (40 to 60 or more inches)

*Drainage class:* Well drained

*Permeability:* Caneyville—moderately slow (0.2-0.6 inch/hour); Bucklick—moderate (0.6-2.0 inches/hour)

*Available water capacity:* Low (3 to 6 inches)

*Shrink-swell potential:* Moderate (3 to 6 percent)

*Flooding:* None

*Water table:* None

### **73151—Caneyville-Gasconade-Bucklick complex, 15 to 25 percent slopes, rocky**

#### **Setting**

*Landform:* Upland

*Position on the landform:* Backslope

*Parent material:* Caneyville—residuum from dolostone; Gasconade—thin, clayey residuum from dolostone; Bucklick—loess and the underlying clayey materials or residuum from dolostone

### **Composition**

Caneyville and similar soils—40 percent  
Gasconade and similar soils—30 percent  
Bucklick and similar soils—25 percent  
Minor components—5 percent  
Rock outcrop

### **Typical Profile**

#### **Caneyville**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 9 inches; silt loam  
 Bt—9 to 31 inches; clay  
 R—31 inches; bedrock

#### **Gasconade**

A—0 to 3 inches; silty clay  
 Bw—3 to 16 inches; very cobbly silty clay loam  
 R—16 inches; bedrock

#### **Bucklick**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 6 inches; silt loam  
 Bt—6 to 31 inches; silty clay  
 2Bt—31 to 47 inches; clay  
 2R—47 inches; bedrock

#### **Soil Properties and Qualities**

*Depth to bedrock:* Caneyville—moderately deep (20 to 40 inches); Gasconade—shallow and very shallow (4 to 20 inches); Bucklick—deep or very deep (40 to 60 or more inches)

*Drainage class:* Caneyville and Bucklick—well drained; Gasconade—somewhat excessively drained

*Permeability:* Caneyville and Gasconade—moderately slow (0.2-0.6 inch/hour); Bucklick—moderate (0.6-2.0 inches/hour)

*Available water capacity:* Caneyville and Bucklick—low (3 to 6 inches); Gasconade—very low (0 to 3 inches)

*Shrink-swell potential:* Moderate (3 to 6 percent)

*Flooding:* None

*Water table:* None

#### **73152—Lily-Ramsey complex, 3 to 8 percent slopes**

##### **Setting**

*Landform:* Lily—upland; Ramsey—plateau

*Position on the landform:* Summit

*Parent material:* Residuum from sandstone

##### **Composition**

Lily and similar soils—65 percent  
 Ramsey and similar soils—20 percent  
 Minor components—15 percent  
     Jonca soils  
     Rock outcrop  
     Deep, well drained, loamy soils

##### **Typical Profile**

##### **Lily**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 3 inches; silt loam  
 E—3 to 9 inches; silt loam  
 Bt—9 to 25 inches; loam  
 R—25 inches; bedrock

##### **Ramsey**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 3 inches; fine sandy loam  
 E—3 to 7 inches; fine sandy loam  
 Bw—7 to 17 inches; fine sandy loam  
 R—17 inches; bedrock

#### **Soil Properties and Qualities**

*Depth to bedrock:* Lily—moderately deep (20 to 40 inches); Ramsey—shallow and very shallow (4 to 20 inches)

*Drainage class:* Lily—well drained, Ramsey—somewhat excessively drained

*Permeability:* Lily—moderately rapid (2.0-6.0 inches/hour); Ramsey—rapid (6.0-20 inches/hour)

*Available water capacity:* Lily—low (3 to 6 inches); Ramsey—very low (0 to 3 inches)

*Shrink-swell potential:* Low (0 to 3 percent)

*Flooding:* None

*Water table:* None

#### **73153—Lily-Ramsey complex, 8 to 15 percent slopes**

##### **Setting**

*Landform:* Lily—upland; Ramsey—plateau

*Position on the landform:* Shoulder

*Parent material:* Residuum from sandstone

##### **Composition**

Lily and similar soils—50 percent  
 Ramsey and similar soils—35 percent  
 Minor components—15 percent  
     Jonca soils  
     Rock outcrop  
     Deep, well drained, loamy soils

##### **Typical Profile**

##### **Lily**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 4 inches; fine sandy loam  
 E—4 to 11 inches; fine sandy loam  
 Bt—11 to 28 inches; loam  
 R—28 inches; bedrock

##### **Ramsey**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 3 inches; fine sandy loam

E—3 to 7 inches; fine sandy loam  
Bw—7 to 17 inches; fine sandy loam  
R—17 inches; bedrock

#### **Soil Properties and Qualities**

*Depth to bedrock:* Lily—moderately deep (20 to 40 inches); Ramsey—shallow and very shallow (4 to 20 inches)

*Drainage class:* Lily—well drained; Ramsey—somewhat excessively drained

*Permeability:* Lily—moderately rapid (2.0-6.0 inches/hour); Ramsey—rapid (6.0-20 inches/hour)

*Available water capacity:* Lily—low (3 to 6 inches); Ramsey—very low (0 to 3 inches)

*Shrink-swell potential:* Low (0 to 3 percent)

*Flooding:* None

*Water table:* None

### **73154—Ramsey-Rock outcrop complex, 8 to 25 percent slopes**

#### **Setting**

*Landform:* Ramsey—hillside; Rock outcrop—hill

*Position on the landform:* Ramsey—shoulder and backslope; Rock outcrop—shoulder

*Parent material:* Ramsey—residuum from sandstone; Rock outcrop—no data

#### **Composition**

Ramsey and similar soils—77 percent

Rock outcrop—17 percent

Minor components—6 percent

Lily soils

#### **Typical Profile**

##### **Ramsey**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 3 inches; fine sandy loam

E—3 to 7 inches; fine sandy loam

Bw—7 to 17 inches; fine sandy loam

R—17 inches; bedrock

#### **Soil Properties and Qualities**

*Depth to bedrock:* Ramsey—very shallow and shallow (4 to 20 inches); Rock outcrop—no data

*Drainage class:* Ramsey—somewhat excessively drained; Rock outcrop—no data

*Permeability:* Ramsey—rapid (6.0-20 inches/hour); Rock outcrop—no data

*Available water capacity:* Ramsey—very low (0 to 3 inches); Rock outcrop—no data

*Shrink-swell potential:* Ramsey—low (0 to 3 percent); Rock outcrop—no data

*Flooding:* None

*Water table:* None

### **73155—Gasconade-Rock outcrop complex, 3 to 35 percent slopes**

#### **Setting**

*Landform:* Upland

*Position on the landform:* Gasconade—backslope and shoulder; Rock outcrop—backslope

*Parent material:* Gasconade—thin, clayey residuum from dolostone; Rock outcrop—no data

#### **Composition**

Gasconade and similar soils—60 percent

Rock outcrop—30 percent

Minor components—10 percent

Caneyville soils

Gepp soils

#### **Typical Profile**

##### **Gasconade**

A—0 to 4 inches; silty clay

Bw—4 to 13 inches; very gravelly clay

R—13 inches; bedrock

#### **Soil Properties and Qualities**

*Depth to bedrock:* Gasconade—shallow and very shallow (4 to 20 inches); Rock outcrop—no data

*Drainage class:* Gasconade—somewhat excessively drained; Rock outcrop—no data

*Permeability:* Gasconade—moderately slow (0.2-0.6 inch/hour); Rock outcrop—no data

*Available water capacity:* Gasconade—very low (0 to 3 inches); Rock outcrop—no data

*Shrink-swell potential:* Gasconade—moderate (3 to 6 percent); Rock outcrop—no data

*Flooding:* None

*Water table:* None

### **73156—Alred-Gepp complex, 8 to 15 percent slopes, stony**

#### **Setting**

*Landform:* Upland

*Position on the landform:* Alred—shoulder; Gepp—shoulder or summit

*Parent material:* Alred—cherty hillslope sediments and the underlying clayey residuum; Gepp—clayey residuum weathered from dolostone

**Composition**

Alred and similar soils—55 percent  
 Gepp and similar soils—20 percent  
 Minor components—25 percent  
     Clarksville soils  
     Gasconade soils  
     Goss soils  
     Moderately deep, loamy-skeletal soils

**Typical Profile****Alred**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 6 inches; very gravelly silt loam  
 E—6 to 11 inches; gravelly silt loam  
 Bt—11 to 31 inches; very gravelly silt loam  
 2Bt—31 to 79 inches; clay

**Gepp**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 6 inches; very gravelly silt loam  
 Bt—6 to 12 inches; clay  
 2Bt—12 to 67 inches; clay

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability:* Alred—moderate in the upper part and slow in the lower part (0.6-2.0 and 0.06-0.2 inches/hour); Gepp—moderate (0.6-2.0 inches/hour)  
*Available water capacity:* Low (3 to 6 inches)  
*Shrink-swell potential:* Moderate (3 to 6 percent)  
*Flooding:* None  
*Water table:* None

**73157—Captina silt loam, 3 to 8 percent slopes****Setting**

*Landform:* Upland  
*Position on the landform:* Summit of broad ridges  
*Parent material:* Thin mantle of silty material and the underlying colluvium and residuum weathered from cherty dolostone

**Composition**

Captina and similar soils—90 percent  
 Minor components—10 percent  
     Clarksville soils  
     Scholten soils  
     Very deep, fine-silty soils without a fragipan

**Typical Profile**

Ap—0 to 5 inches; silt loam  
 Bt—5 to 25 inches; silty clay loam  
 2Btx—25 to 31 inches; extremely gravelly silt loam  
 3Bt—31 to 78 inches; gravelly clay

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Slow (0.06-0.2 inch/hour)  
*Available water capacity:* Low (3 to 6 inches)  
*Shrink-swell potential:* Moderate (3 to 6 percent)  
*Flooding:* None  
*Water table:* 18 to 36 inches

**74644—Deible silt loam, 1 to 3 percent slopes****Setting**

*Landform:* Stream valley  
*Position on the landform:* Stream terrace and footslope  
*Parent material:* Loess and the underlying alluvium

**Composition**

Deible and similar soils—90 percent  
 Minor components—10 percent  
     Higdon soils  
     Raccoon soils

**Typical Profile**

Ap—0 to 7 inches; silt loam  
 E—7 to 16 inches; silt loam  
 Btg—16 to 40 inches; silty clay loam  
 2Btg—40 to 65 inches; clay loam

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Permeability:* Very slow (0.01-0.06 inch/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* High (6 to 9 percent)  
*Flooding:* None  
*Water table:* 0 to 12 inches

**74645—Higdon silt loam, 1 to 3 percent slopes****Setting**

*Landform:* Stream valley  
*Position on the landform:* High terrace, upland, or footslope

*Parent material:* Silty and loamy sediments derived from loess, colluvium, and alluvium

### **Composition**

Higdon and similar soils—90 percent  
 Minor components—10 percent  
     Marquand soils  
     Raccoon soils

### **Typical Profile**

Ap—0 to 8 inches; silt loam  
 E—8 to 13 inches; silt loam  
 Bt—13 to 27 inches; silty clay loam  
 2Btg—27 to 67 inches; silty clay loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* Moderate (3 to 6 percent)  
*Flooding:* None  
*Water table:* 12 to 24 inches

## **74646—Cornwall silt loam, 3 to 8 percent slopes**

### **Setting**

*Landform:* Stream valley  
*Position on the landform:* High terrace, valley footslope, and intravalley ridge point  
*Parent material:* Loess and valley fill materials

### **Composition**

Cornwall and similar soils—90 percent  
 Minor components—10 percent  
     Marquand soils  
     Tilk soils

### **Typical Profile**

Ap—0 to 5 inches; silt loam  
 Bt—5 to 17 inches; silty clay loam  
 2Btx—17 to 39 inches; silt loam  
 3Bt—39 to 60 inches; very gravelly silty clay loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* Moderate (6 to 9 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* 18 to 36 inches

## **74647—Cornwall silt loam, 8 to 15 percent slopes**

### **Setting**

*Landform:* Stream valley  
*Position on the landform:* High terrace, valley footslope, and intravalley ridge point  
*Parent material:* Loess and valley fill materials

### **Composition**

Cornwall and similar soils—90 percent  
 Minor components—10 percent  
     Aslinger soils  
     Clarksville soils  
     Waben soils

### **Typical Profile**

Ap—0 to 6 inches; silt loam  
 Bt—6 to 34 inches; silty clay loam  
 2Btx—34 to 52 inches; silt loam  
 3Bt—52 to 60 inches; very gravelly silty clay loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* 18 to 36 inches

## **74648—Aslinger silt loam, 3 to 8 percent slopes**

### **Setting**

*Landform:* High terrace and valley  
*Position on the landform:* Footslope  
*Parent material:* Loamy colluvium and loamy or clayey alluvium

### **Composition**

Aslinger and similar soils—85 percent  
 Minor components—15 percent  
     Cornwall soils

### **Typical Profile**

Ap—0 to 4 inches; silt loam  
 AB—4 to 8 inches; silt loam  
 Bt—8 to 21 inches; silt loam  
 2Btx—21 to 29 inches; very gravelly silt loam  
 3Bt—29 to 55 inches; very gravelly clay loam  
 4Bt—55 to 70 inches; extremely cobbly clay

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* Low (3 to 6 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* 18 to 30 inches

### **74649—Aslinger-Waben complex, 3 to 15 percent slopes**

#### **Setting**

*Landform:* High terrace and valley  
*Position on the landform:* Aslinger—footslope;  
 Waben—narrow terrace, alluvial-colluvial fan, and toeslope  
*Parent material:* Aslinger—loamy colluvium and loamy or clayey alluvium; Waben—very cherty alluvium and colluvium

#### **Composition**

Aslinger and similar soils—70 percent  
 Waben and similar soils—20 percent  
 Minor components—10 percent  
 Clarksville soils  
 Marquand soils

#### **Typical Profile**

#### **Aslinger**

Ap—0 to 3 inches; silt loam  
 AB—3 to 8 inches; silt loam  
 Bt—8 to 20 inches; silty clay loam  
 2Btx—20 to 39 inches; gravelly silt loam  
 3Bt—39 to 52 inches; gravelly loam  
 4Bt—52 to 80 inches; gravelly clay

#### **Waben**

Ap—0 to 6 inches; gravelly silt loam  
 Bt—6 to 15 inches; very gravelly silt loam  
 2Bt—15 to 54 inches; very gravelly loam  
 3Bt—54 to 80 inches; very gravelly clay loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Aslinger—moderately well drained;  
 Waben—well drained  
*Permeability:* Aslinger—moderately slow (0.2-0.6 inch/hour); Waben—moderately rapid (2.0-6.0 inches/hour)

*Available water capacity:* Low (3 to 6 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* Aslinger—18 to 30 inches; Waben—none

### **74650—Higdon silt loam, 0 to 3 percent slopes, occasionally flooded**

#### **Setting**

*Landform:* Stream valley  
*Position on the landform:* High flood plain  
*Parent material:* Silty and loamy sediments derived from loess, colluvium, and alluvium

#### **Composition**

Higdon and similar soils—90 percent  
 Minor components—10 percent  
 Bearthicket soils  
 Deible soils  
 Racoon soils  
 Secesh soils

#### **Typical Profile**

Ap—0 to 5 inches; silt loam  
 E—5 to 16 inches; silt loam  
 Bt—16 to 33 inches; silty clay loam  
 2Bt—33 to 80 inches; silty clay loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Somewhat poorly drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* Moderate (3 to 6 percent)  
*Flooding:* Occasional (5 to 50 percent chance in any year)  
*Water table:* 12 to 24 inches

### **74684—Racoon silt loam, 0 to 3 percent slopes, rarely flooded**

#### **Setting**

*Landform:* Stream valley  
*Position on the landform:* Low stream terrace  
*Parent material:* Loess and silty alluvium

#### **Composition**

Racoon and similar soils—90 percent

Minor components—10 percent

Bearthicket soils  
Deible soils  
Secesh soils  
Waben soils

### **Typical Profile**

Ap—0 to 4 inches; silt loam  
Eg—4 to 26 inches; silt loam  
Btg—26 to 58 inches; silt loam  
Cg—58 to 80 inches; silt loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Permeability:* Slow (0.06-0.2 inch/hour)  
*Available water capacity:* Very high (more than 12 inches)  
*Shrink-swell potential:* Moderate (3 to 6 percent)  
*Flooding:* Rare (1 to 5 percent chance in any year)  
*Water table:* 0 to 12 inches

## **75381—Bearthicket silt loam, 0 to 3 percent slopes, rarely flooded**

### **Setting**

*Landform:* Stream valley  
*Position on the landform:* Low stream terrace  
*Parent material:* Silty alluvium

### **Composition**

Bearthicket and similar soils—85 percent  
Minor components—15 percent  
Deible soils  
Marquand soils  
Secesh soils

### **Typical Profile**

Ap—0 to 6 inches; silt loam  
AB—6 to 19 inches; silt loam  
Bt—19 to 45 inches; silt loam  
2BC—45 to 64 inches; loam  
2C—64 to 80 inches; coarse sandy loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability:* Moderate (0.6-2.0 inches/hour)  
*Available water capacity:* Very high (more than 12 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* Rare (1 to 5 percent chance in any year)  
*Water table:* None

## **75395—Jamesfin silt loam, 0 to 3 percent slopes, occasionally flooded**

### **Setting**

*Landform:* Stream valley  
*Position on the landform:* High flood plain  
*Parent material:* Silty alluvium

### **Composition**

Jamesfin and similar soils—90 percent  
Minor components—10 percent  
Gladden soils  
Higdon soils  
Very deep, sandy soils

### **Typical Profile**

Ap—0 to 6 inches; silt loam  
A—6 to 15 inches; silt loam  
Bw—15 to 53 inches; silt loam  
BC—53 to 62 inches; loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability:* Moderate (0.6-2.0 inches/hour)  
*Available water capacity:* Very high (more than 12 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* Occasional (5 to 50 percent chance in any year)  
*Water table:* 48 to 60 inches

## **75408—Secesh silt loam, 0 to 3 percent slopes, rarely flooded**

### **Setting**

*Landform:* Stream valley  
*Position on the landform:* Low stream terrace and footslope  
*Parent material:* Loamy and gravelly alluvium

### **Composition**

Secesh and similar soils—90 percent  
Minor components—10 percent  
Bearthicket soils  
Gladden soils  
Relfe soils  
Tilk soils

### **Typical Profile**

Ap—0 to 4 inches; silt loam

AB—4 to 10 inches; silt loam  
 Bt—10 to 26 inches; gravelly silt loam  
 2Bt—26 to 36 inches; gravelly loam  
 2C—36 to 80 inches; very gravelly coarse sandy loam

#### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability:* Moderate (0.6-2.0 inches/hour)  
*Available water capacity:* Moderate (6 to 9 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* Rare (1 to 5 percent chance in any year)  
*Water table:* None

### **75409—Relfe sandy loam, 0 to 3 percent slopes, occasionally flooded**

#### **Setting**

*Landform:* Stream valley  
*Position on the landform:* High flood plain  
*Parent material:* Gravelly alluvium

#### **Composition**

Relfe and similar soils—90 percent  
 Minor components—10 percent  
     Gladden soils  
     Gravel bars  
     Very deep, sandy soils

#### **Typical Profile**

Ap—0 to 7 inches; sandy loam  
 C—7 to 64 inches; extremely gravelly sand

#### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Excessively drained  
*Permeability:* Rapid (6.0-20 inches/hour)  
*Available water capacity:* Low (3 to 6 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* Occasional (5 to 50 percent chance in any year)  
*Water table:* None

### **75410—Relfe gravelly sandy loam, 0 to 3 percent slopes, frequently flooded**

#### **Setting**

*Landform:* Stream valley  
*Position on the landform:* Low flood plain  
*Parent material:* Gravelly alluvium

#### **Composition**

Relfe and similar soils—90 percent  
 Minor components—10 percent  
     Gladden soils  
     Gravel bars

#### **Typical Profile**

A—0 to 6 inches; gravelly sandy loam  
 C—6 to 64 inches; extremely gravelly coarse sand

#### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Excessively drained  
*Permeability:* Rapid (6.0-20 inches/hour)  
*Available water capacity:* Low (3 to 6 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* Frequent (more than a 50 percent chance in any year)  
*Water table:* None

### **75411—Tilk very gravelly sandy loam, 0 to 3 percent slopes, rarely flooded**

#### **Setting**

*Landform:* Stream valley (fig. 8)  
*Position on the landform:* Low stream terrace  
*Parent material:* Loamy and sandy alluvium with a high content of rock fragments

#### **Composition**

Tilk and similar soils—85 percent  
 Minor components—15 percent  
     Gladden soils  
     Secesh soils  
     Excessively drained, sandy soils

#### **Typical Profile**

A—0 to 8 inches; very gravelly sandy loam  
 E—8 to 16 inches; extremely gravelly loam  
 Bt—16 to 47 inches; very cobbly loam  
 2C—47 to 70 inches; extremely gravelly coarse sandy loam

#### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid (2.0-6.0 inches/hour)  
*Available water capacity:* Low (3 to 6 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* Rare (1 to 5 percent chance in any year)  
*Water table:* None



Figure 8.—Cool-season grass in an area of Tilk very gravelly sandy loam, 0 to 3 percent slopes, rarely flooded.

**75416—Gladden loam, 0 to 3 percent slopes, occasionally flooded**

**Setting**

*Landform:* Stream valley  
*Position on the landform:* High flood plain  
*Parent material:* Loamy alluvium

**Composition**

Gladden and similar soils—85 percent  
 Minor components—15 percent  
     Jamesfin soils  
     Relfe soils  
     Secesh soils  
     Excessively drained, sandy soils

**Typical Profile**

Ap—0 to 5 inches; loam  
 A—5 to 26 inches; loam  
 Bw—26 to 58 inches; loam  
 2C—58 to 77 inches; coarse sand

**Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability:* Moderate in the upper part and moderately rapid to very rapid in the lower part (0.6-2.0 and 2.0-20 inches/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* Occasional (5 to 50 percent chance in any year)  
*Water table:* None

**77000—Killarney-Frenchmill complex, 15 to 45 percent slopes, rubbly**

**Setting**

*Landform:* Mountain  
*Position on the landform:* Killarney—lower backslope and footslope; Frenchmill—backslope and footslope

*Parent material:* Killarney—colluvial materials from loess and residuum from rocks of igneous origin; Frenchmill—colluvial materials weathered from rhyolite or granite

### **Composition**

Killarney and similar soils—45 percent  
 Frenchmill and similar soils—40 percent  
 Minor components—15 percent  
     Delassus soils  
     Irondale soils  
     Taumsauk soils  
     Rock outcrop

### **Typical Profile**

#### **Killarney**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 5 inches; very cobbly silt loam  
 E—5 to 16 inches; very cobbly silt loam  
 Bt—16 to 32 inches; very gravelly silt loam  
 2Btx—32 to 48 inches; very gravelly silt loam  
 3Bt—48 to 80 inches; very gravelly loam

#### **Frenchmill**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 6 inches; very cobbly silt loam  
 E—6 to 19 inches; gravelly silt loam  
 Bt—19 to 27 inches; very gravelly silt loam  
 2Bt—27 to 58 inches; very gravelly loam  
 3Bt—58 to 80 inches; cobbly clay loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Killarney—moderately well drained, Frenchmill—well drained  
*Permeability:* Killarney—moderate above the fragipan and very slow in the fragipan (0.6-2.0 and 0.01-0.06 inches/hour); Frenchmill—moderate (0.6-2.0 inches/hour)  
*Available water capacity:* Killarney—low (3 to 6 inches); Frenchmill—moderate (6 to 9 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* Killarney—24 to 36 inches; Frenchmill—none

### **77001—Loughboro silt loam, 0 to 3 percent slopes**

#### **Setting**

*Landform:* Mountain basin  
*Position on the landform:* Summit

*Parent material:* Loess overlying loamy and clayey sediments from granite bedrock

### **Composition**

Loughboro and similar soils—90 percent  
 Minor components—10 percent  
     Delassus soils  
     Hassler soils

### **Typical Profile**

Ap—0 to 4 inches; silt loam  
 E—4 to 12 inches; silt loam  
 B/E—12 to 17 inches; silty clay loam  
 Btg—17 to 45 inches; silty clay loam  
 2Cg—45 to 67 inches; silty clay loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Poorly drained  
*Permeability:* Slow (0.06-0.2 inch/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* High (6 to 9 percent)  
*Flooding:* None  
*Water table:* 12 to 18 inches

### **77002—Delassus silt loam, 3 to 8 percent slopes**

#### **Setting**

*Landform:* Mountain  
*Position on the landform:* Summit and footslope  
*Parent material:* Loess and the underlying residuum or colluvium from granite and other rocks of igneous origin

### **Composition**

Delassus and similar soils—90 percent  
 Minor components—10 percent  
     Killarney soils  
     Roselle soils  
     Trackler soils

### **Typical Profile**

A—0 to 3 inches; silt loam  
 E—3 to 7 inches; silt loam  
 Bt—7 to 31 inches; silty clay loam  
 2Btx—31 to 61 inches; loam  
 2R—61 inches; bedrock

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Moderate in the upper part and very

slow in the fragipan (0.6-2.0 and 0.01-0.06 inches/hour)

*Available water capacity:* Low (3 to 6 inches)

*Shrink-swell potential:* Low (0 to 3 percent)

*Flooding:* None

*Water table:* 22 to 30 inches

### **77003—Delassus gravelly silt loam, 8 to 15 percent slopes, very bouldery**

#### **Setting**

*Landform:* Mountain

*Position on the landform:* Shoulder and footslope

*Parent material:* Loess and the underlying residuum or colluvium from granite and other rocks of igneous origin

#### **Composition**

Delassus and similar soils—90 percent

Minor components—10 percent

Frenchmill soils

Roselle soils

Trackler soils

Rock outcrop

#### **Typical Profile**

A—0 to 8 inches; gravelly silt loam

E—8 to 13 inches; gravelly silt loam

Bt—13 to 20 inches; gravelly silt loam

2Btx—20 to 59 inches; gravelly silt loam

3Bt—59 to 78 inches; cobbly silt loam

#### **Soil Properties and Qualities**

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

*Drainage class:* Moderately well drained

*Permeability:* Moderate in the upper part and very slow in the fragipan (0.6-2.0 and 0.01-0.06 inches/hour)

*Available water capacity:* Low (3 to 6 inches)

*Shrink-swell potential:* Low (0 to 3 percent)

*Flooding:* None

*Water table:* 22 to 30 inches

### **77004—Irondale gravelly silt loam, 15 to 35 percent slopes, rocky, extremely bouldery**

#### **Setting**

*Landform:* Mountain

*Position on the landform:* Shoulder and backslope

*Parent material:* Residuum from fine-grained igneous rock

#### **Composition**

Irondale and similar soils—85 percent

Minor components—15 percent

Frenchmill soils

Killarney soils

Taumsauk soils

Trackler soils

#### **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 4 inches; gravelly silt loam

E—4 to 9 inches; gravelly silt loam

Bt—9 to 15 inches; very gravelly silt loam

2Bt—15 to 22 inches; very gravelly loam

2R—22 inches; bedrock

#### **Soil Properties and Qualities**

*Depth to bedrock:* Moderately deep (20 to 40 inches)

*Drainage class:* Well drained

*Permeability:* Moderate (0.6-2.0 inches/hour)

*Available water capacity:* Very low (0 to 3 inches)

*Shrink-swell potential:* Low (0 to 3 percent)

*Flooding:* None

*Water table:* None

### **77005—Hassler-Syenite complex, 8 to 25 percent slopes, bouldery**

#### **Setting**

*Landform:* Mountain (fig. 9)

*Position on the landform:* Shoulder and backslope

*Parent material:* Hassler—loamy colluvium and residuum weathered from acid igneous rocks, primarily granite; Syenite—loess and the underlying loamy residuum from granite

#### **Composition**

Hassler and similar soils—43 percent

Syenite and similar soils—33 percent

Minor components—24 percent

Killarney soils

Roselle soils

Taumsauk soils

Rock outcrop

Soils similar to Irondale

#### **Typical Profile**

#### **Hassler**

Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 6 inches; silt loam

E—6 to 11 inches; silt loam

Bt—11 to 20 inches; cobbly loam



Figure 9.—Typical scenic rural road through a forested area on Hassler-Syenite complex, 8 to 25 percent slopes, bouldery.

2Bt—20 to 34 inches; very cobbly loam  
 3BC—34 to 42 inches; very stony coarse sandy loam  
 3R—42 inches; bedrock

#### **Syenite**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 4 inches; silt loam  
 E—4 to 9 inches; silt loam  
 Bt—9 to 19 inches; gravelly loam  
 2Bt—19 to 29 inches; loam  
 2R—29 inches; bedrock

#### **Soil Properties and Qualities**

*Depth to bedrock:* Hassler—deep (40 to 60 inches);  
 Syenite—moderately deep (20 to 40 inches)

*Drainage class:* Hassler—moderately well drained;  
 Syenite—well drained

*Permeability:* Moderately slow (0.2-0.6 inch/hour)

*Available water capacity:* Hassler—moderate (6 to 9 inches); Syenite—low (3 to 6 inches)

*Shrink-swell potential:* Low (0 to 3 percent)

*Flooding:* None

*Water table:* Hassler—22 to 30 inches; Syenite—none

#### **77006—Roselle silt loam, 3 to 8 percent slopes**

#### **Setting**

*Landform:* Mountain basin

*Position on the landform:* Terrace and footslope  
*Parent material:* Colluvium and alluvium derived from coarse-grained, acid igneous rocks, primarily granite

### **Composition**

Roselle and similar soils—95 percent  
 Minor components—5 percent  
     Hassler soils  
     Rock outcrop

### **Typical Profile**

Ap—0 to 7 inches; silt loam  
 Bt—7 to 15 inches; silt loam  
 2Bt—15 to 57 inches; loam  
 2BC—57 to 80 inches; coarse sandy loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Moderate (0.6-2.0 inches/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* None

## **77007—Taumsauk-Irondale-Rock outcrop complex, 15 to 45 percent slopes, extremely stony**

### **Setting**

*Landform:* Mountain (fig. 10)  
*Position on the landform:* Backslope  
*Parent material:* Taumsauk—colluvium or residuum weathered from rhyolite or felsite; Irondale—residuum from fine-grained igneous rock; Rock outcrop—no data

### **Composition**

Taumsauk and similar soils—40 percent  
 Irondale and similar soils—32 percent  
 Rock outcrop—21 percent  
 Minor components—7 percent  
     Frenchmill soils  
     Killarney soils  
     Trackler soils

### **Typical Profile**

#### **Taumsauk**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 5 inches; cobbly silt loam  
 Bt—5 to 17 inches; very cobbly silt loam  
 R—17 inches; bedrock

#### **Irondale**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 5 inches; very cobbly silt loam  
 E—5 to 10 inches; very cobbly silt loam  
 Bt—10 to 17 inches; very cobbly silt loam  
 2Bt—17 to 35 inches; very cobbly silty clay loam  
 R—35 inches; bedrock

### **Soil Properties and Qualities**

*Depth to bedrock:* Taumsauk—shallow and very shallow (4 to 20 inches); Irondale—moderately deep (20 to 40 inches); Rock outcrop—no data  
*Drainage class:* Taumsauk—somewhat excessively drained; Irondale—well drained; Rock outcrop—no data  
*Permeability:* Taumsauk and Irondale—moderate (0.6-2.0 inches/hour); Rock outcrop—no data  
*Available water capacity:* Taumsauk and Irondale—very low (0 to 3 inches); Rock outcrop—no data  
*Shrink-swell potential:* Taumsauk and Irondale—low (0 to 3 percent); Rock outcrop—no data  
*Flooding:* None  
*Water table:* None

## **77008—Hassler silt loam, 3 to 15 percent slopes, stony**

### **Setting**

*Landform:* Mountain  
*Position on the landform:* Summit and shoulder  
*Parent material:* Loamy colluvium and residuum weathered from acid igneous rocks, primarily granite

### **Composition**

Hassler and similar soils—90 percent  
 Minor components—10 percent  
     Killarney soils  
     Roselle soils  
     Syenite soils  
     Rock outcrop

### **Typical Profile**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 3 inches; silt loam  
 E—3 to 9 inches; silt loam  
 Bt—9 to 24 inches; loam  
 2Bt—24 to 31 inches; gravelly loam  
 3BC—31 to 48 inches; bouldery coarse sandy loam  
 3R—48 inches; bedrock

### **Soil Properties and Qualities**

*Depth to bedrock:* Deep (40 to 60 inches)



Figure 10.—Grasses and forbs grow mainly on the Taumsauk soil, trees grow on the Irondale soil, and areas of bare rock occur throughout this area of Taumsauk-Irondale-Rock outcrop complex, 15 to 45 percent slopes, extremely stony.

*Drainage class:* Moderately well drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* Moderate (6 to 9 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* 22 to 30 inches

**77009—Trackler silt loam, 3 to 8 percent slopes**

***Setting***

*Landform:* Mountain  
*Position on the landform:* Summit

*Parent material:* Loamy colluvium and residuum from fine-grained igneous rocks, predominantly rhyolite

***Composition***

Trackler and similar soils—92 percent  
 Minor components—8 percent  
     Delassus soils  
     Loughboro soils  
     Taumsauk soils

***Typical Profile***

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 2 inches; silt loam  
 E—2 to 8 inches; silt loam

Bt—8 to 14 inches; silt loam  
 2Bt—14 to 23 inches; cobbly silt loam  
 3CB—23 to 45 inches; extremely stony loam  
 3R—45 inches; bedrock

### **Soil Properties and Qualities**

*Depth to bedrock:* Deep (40 to 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* Low (3 to 6 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* 22 to 30 inches

## **77010—Trackler-Irondale complex, 8 to 15 percent slopes**

### **Setting**

*Landform:* Mountain  
*Position on the landform:* Shoulder  
*Parent material:* Trackler—loamy colluvium and residuum from fine-grained igneous rocks, predominantly rhyolite; Irondale—residuum from fine-grained igneous rock

### **Composition**

Trackler and similar soils—45 percent  
 Irondale and similar soils—40 percent  
 Minor components—15 percent  
     Delassus soils  
     Taumsauk soils  
     Rock outcrop

### **Typical Profile**

#### **Trackler soils**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 4 inches; silt loam  
 E—4 to 8 inches; silt loam  
 Bt—8 to 13 inches; silt loam  
 2Bt—13 to 25 inches; silty clay loam  
 3CB—25 to 44 inches; very gravelly loam  
 3R—44 inches; bedrock

#### **Irondale**

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 to 5 inches; gravelly silt loam  
 E—5 to 11 inches; very gravelly silt loam  
 Bt—11 to 15 inches; very gravelly silt loam  
 2Bt—15 to 24 inches; very gravelly loam  
 R—24 inches; bedrock

### **Soil Properties and Qualities**

*Depth to bedrock:* Trackler—deep (40 to 60 inches); Irondale—moderately deep (20 to 40 inches)  
*Drainage class:* Trackler—moderately well drained, Irondale—well drained  
*Permeability:* Trackler—moderately slow (0.2-0.6 inch/hour); Irondale—moderate (0.6-2.0 inches/hour)  
*Available water capacity:* Trackler—low (3 to 6 inches); Irondale—very low (0 to 3 inches)  
*Shrink-swell potential:* Low (0 to 3 percent)  
*Flooding:* None  
*Water table:* Trackler—22 to 30 inches; Irondale—none

## **78250—Skrainka silt loam, 3 to 8 percent slopes, eroded**

### **Setting**

*Landform:* Basin-floor remnant  
*Position on the landform:* Ridge  
*Parent material:* Alluvium or colluvium and residuum weathered primarily from basic igneous rocks

### **Composition**

Skrainka and similar soils—95 percent  
 Minor components—5 percent  
     Hassler soils  
     Taumsauk soils

### **Typical Profile**

Ap—0 to 6 inches; silt loam  
 Bt—6 to 33 inches; clay  
 2BC—33 to 57 inches; loam  
 2C—57 to 80 inches; sandy loam

### **Soil Properties and Qualities**

*Depth to bedrock:* Very deep (more than 60 inches)  
*Drainage class:* Moderately well drained  
*Permeability:* Moderately slow (0.2-0.6 inch/hour)  
*Available water capacity:* High (9 to 12 inches)  
*Shrink-swell potential:* Moderate (3 to 6 percent)  
*Flooding:* None  
*Water table:* None

## **78251—Skrainka loam, 8 to 15 percent slopes, eroded**

### **Setting**

*Landform:* Basin-floor remnant

*Position on the landform:* Footslope

*Parent material:* Alluvium or colluvium and residuum weathered primarily from basic igneous rocks

### **Composition**

Skrainka and similar soils—95 percent

Minor components—5 percent

Hassler soils

Taumsauk soils

### **Typical Profile**

Ap—0 to 4 inches; loam

Bt—4 to 31 inches; clay

2BC—31 to 54 inches; clay loam

2C—54 to 80 inches; coarse sandy loam

### **Soil Properties and Qualities**

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

*Drainage class:* Moderately well drained

*Permeability:* Moderately slow (0.2-0.6 inch/hour)

*Available water capacity:* High (9 to 12 inches)

*Shrink-swell potential:* Moderate (3 to 6 percent)

*Flooding:* None

*Water table:* None

## **99001—Water**

### **Setting**

*Landform:* Ponds, lakes, and streams

## **99006—Psamments, 1 to 8 percent slopes**

### **Setting**

*Landform:* None assigned

*Position on the landform:* None assigned

*Parent material:* Finely crushed dolomite from ore processing

### **Composition**

Udipsamments—90 percent

Minor components—10 percent

Crushed igneous rock

Pits

Shallow water areas

Udorthents

Waterlogged sands

## **99008—Udorthents-Dumps complex, 3 to 8 percent slopes, stony**

### **Setting**

*Landform:* None assigned

*Position on the landform:* None assigned

*Parent material:* No data

### **Composition**

Udorthents—53 percent

Dumps—42 percent

Minor components—5 percent

Pits

Water

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
73055	Alred-Rueter complex, 15 to 35 percent slopes, very stony-----	4,081	1.3
73139	Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony-----	29,392	9.2
73140	Clarksville-Scholten complex, 15 to 45 percent slopes, very stony-----	76,282	23.9
73141	Firebaugh silt, 3 to 8 percent slopes-----	7,506	2.4
73142	Firebaugh silt loam, 8 to 15 percent slopes-----	1,294	0.4
73143	Courtois silt loam, 3 to 8 percent slopes-----	3,502	1.1
73144	Courtois silt loam, 8 to 15 percent slopes-----	1,501	0.5
73145	Crider silt loam, 3 to 8 percent slopes, eroded-----	6,993	2.2
73146	Marquand silt loam, 3 to 8 percent slopes-----	9,467	3.0
73147	Fourche silt loam, 3 to 8 percent slopes-----	2,411	0.8
73148	Jonca silt loam, 3 to 8 percent slopes-----	2,147	0.7
73149	Caneyville-Bucklick complex, 3 to 8 percent slopes-----	3,420	1.1
73150	Caneyville-Bucklick complex, 8 to 15 percent slopes, rocky-----	2,387	0.7
73151	Caneyville-Gasconade-Bucklick complex, 15 to 25 percent slopes, rocky----	1,421	0.4
73152	Lily-Ramsey complex, 3 to 8 percent slopes-----	4,417	1.4
73153	Lily-Ramsey complex, 8 to 15 percent slopes-----	2,603	0.8
73154	Ramsey-Rock outcrop complex, 8 to 25 percent slopes-----	526	0.2
73155	Gasconade-Rock outcrop complex, 3 to 35 percent slopes-----	1,248	0.4
73156	Alred-Gepp complex, 8 to 15 percent slopes, stony-----	1,870	0.6
73157	Captina silt loam, 3 to 8 percent slopes-----	6,703	2.1
74644	Deible silt loam, 1 to 3 percent slopes-----	540	0.2
74645	Higdon silt loam, 1 to 3 percent slopes-----	1,429	0.4
74646	Cornwall silt loam, 3 to 8 percent slopes-----	4,689	1.5
74647	Cornwall silt loam, 8 to 15 percent slopes-----	989	0.3
74648	Aslinger silt loam, 3 to 8 percent slopes-----	3,491	1.1
74649	Aslinger-Waben complex, 3 to 15 percent slopes-----	7,452	2.3
74650	Higdon silt loam, 0 to 3 percent slopes, occasionally flooded-----	1,168	0.4
74684	Raccoon silt loam, 0 to 3 percent slopes, rarely flooded-----	1,077	0.3
75381	Bearthicket silt loam, 0 to 3 percent slopes, rarely flooded-----	2,783	0.9
75395	Jamesfin silt loam, 0 to 3 percent slopes, occasionally flooded-----	2,881	0.9
75408	Secesh silt loam, 0 to 3 percent slopes, rarely flooded-----	5,663	1.8
75409	Relfe sandy loam, 0 to 3 percent slopes, occasionally flooded-----	5,859	1.8
75410	Relfe gravelly sandy loam, 0 to 3 percent slopes, frequently flooded-----	3,226	1.0
75411	Tilk very gravelly sandy loam, 0 to 3 percent slopes, rarely flooded-----	19,100	6.0
75416	Gladden loam, 0 to 3 percent slopes, occasionally flooded-----	2,324	0.7
77000	Killarney-Frenchmill complex, 15 to 45 percent slopes, rubbly-----	17,245	5.4
77001	Loughboro silt loam, 0 to 3 percent slopes-----	700	0.2
77002	Delassus silt loam, 3 to 8 percent slopes-----	11,498	3.6
77003	Delassus gravelly silt loam, 8 to 15 percent slopes, very bouldery-----	1,888	0.6
77004	Irondale gravelly silt loam, 15 to 35 percent slopes, rocky, extremely bouldery-----	20,883	6.6
77005	Hassler-Syenite complex, 8 to 25 percent slopes, bouldery-----	3,672	1.2
77006	Roselle silt loam, 3 to 8 percent slopes-----	4,153	1.3
77007	Taumsauk-Irondale-Rock outcrop complex, 15 to 45 percent slopes, extremely stony-----	3,500	1.1
77008	Hassler silt loam, 3 to 15 percent slopes, stony-----	3,010	0.9
77009	Trackler silt loam, 3 to 8 percent slopes-----	6,640	2.1
77010	Trackler-Irondale complex, 8 to 15 percent slopes-----	9,126	2.9
78250	Skrainka silt loam, 3 to 8 percent slopes, eroded-----	1,744	0.5
78251	Skrainka loam, 8 to 15 percent slopes, eroded-----	557	0.2
99001	Water-----	1,483	0.5
99006	Psamments, 1 to 8 percent slopes-----	410	0.1
99008	Udorthents-Dumps complex, 3 to 8 percent slopes, stony-----	266	*
	Total-----	318,617	100.0

\* Less than 0.1 percent.



# Prime Farmland

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Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 18,500 acres in the survey area, or nearly 6 percent of the total acreage, meets the soil requirements for prime farmland.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed below. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Some soils that have a seasonal high water table and all soils that are frequently flooded during the growing season qualify as prime farmland only in areas where these limitations have been overcome by drainage measures or flood control. The need for these measures is indicated after the map unit name below. Onsite evaluation is needed to determine whether or not these limitations have been overcome by corrective measures.

The soils identified as prime farmland in Madison County are:

- 74644 Deible silt loam, 1 to 3 percent slopes (where drained)
- 74645 Higdon silt loam, 1 to 3 percent slopes
- 74650 Higdon silt loam, 0 to 3 percent slopes, occasionally flooded
- 74684 Racoon silt loam, 0 to 3 percent slopes, rarely flooded (where drained)
- 75381 Bearthicket silt loam, 0 to 3 percent slopes, rarely flooded
- 75395 Jamesfin silt loam, 0 to 3 percent slopes, occasionally flooded
- 75408 Secesh silt loam, 0 to 3 percent slopes, rarely flooded
- 75416 Gladden loam, 0 to 3 percent slopes, occasionally flooded
- 77001 Loughboro silt loam, 0 to 3 percent slopes (where drained)



# 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 for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for 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 that is in harmony with nature.

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 or not limited by all of the soil features that affect a specified use. Terms for the limitation classes are *not limited*, *slightly limited*, *moderately limited*, *limited*, and *very limited*. In certain tables, the soils are rated as *improbable*, *possible*, or *probable* sources of specific materials used for construction materials.

## Numerical Ratings

Numerical ratings in the tables indicate the severity of individual limitations. They also indicate the overall degree to which a soil is limited or not limited for a specific use. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations 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.

In tables that use limitation class terms, such as *very limited* or *limited*, the limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each map unit component. The overall limitation rating for the component is based on the most severe limitation.

## Crops and Pasture

Thomas E. Johnson, district conservationist, Natural Resources Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific

information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

About 20 percent of the survey area is used for crops and pasture. Of this total, less than 2 percent is used for cultivated crops, mainly corn; the rest is used for pasture and hay.

The potential for increased production is fair. About 18,500 acres in the survey area qualifies as prime farmland. An additional 83,500 acres is suited to crop production, including sloping areas where adequate protection from erosion is needed. About 17,000 acres is better suited for pasture. Another 17,000 acres has favorable topography but may have surface stones or boulders that hinder its use for pasture or hay (fig. 11).

Water erosion is a major concern on slopes of



Figure 11.—Baled hay in an area of Skrainka silt loam, 3 to 8 percent slopes, eroded. An area of Killarney-Frenchmill complex, 15 to 45 percent slopes, rubbly, is in the background.

more than about 2 percent. Loss of the surface layer reduces the available water capacity and results in poor tilth. Erosion is especially harmful to soils that have a root-restricting layer within about 40 inches of the surface, such as Caneyville and Captina soils. Erosion is less harmful, though still a concern, on soils that have no root-restricting characteristics, such as Courtois, Crider, and Fourche soils. Applications of fertilizer help to offset the lower fertility caused by erosion; however, overcoming much of the damage is difficult or impractical. Controlling erosion minimizes the pollution of streams by sedimentation. Thus, water quality is improved for farm and city uses, for wildlife habitat, and for recreational uses.

Erosion-control practices provide a protective cover of crop residue or vegetation. Properly managed permanent pasture or hay can provide 80 percent or more of the protection needed. Crop rotations that alternate cultivated crops and meadows help to control erosion. Applying a system of conservation tillage that leaves a protective cover of crop residue on the surface throughout the year can reduce sheet erosion by one-half or more, as compared to fall plowing with a moldboard plow.

No-till farming is a practice that eliminates tillage operations entirely and leaves nearly all the crop residue on the surface, thereby reducing the hazard of erosion. Contour farming and contour stripcropping can be used on fields that have smooth, uniform slopes.

Terraces that divert surface runoff to safe outlets can be used in some fields. Parallel terraces can be farmed more easily than contour terraces. Deep and very deep soils that have no root-restricting characteristics, such as Crider and Fourche soils, are better suited to terraces than soils that have bedrock near the surface, such as Caneyville soils. On the more shallow soils, the possible losses caused by exposing small infertile areas should be considered when the depth of cut and the design of the terrace system are determined.

Soil tilth is an important factor affecting the germination of seeds and the infiltration of water into the soil. Soils that have good tilth are granular and porous.

In the uplands, most soils used for cultivated crops have a surface layer of silt loam that is low in organic matter content, such as Crider and Fourche soils. Generally, tilling these soils weakens the soil structure and increases the degree of soil compaction and the extent of surface crusting. Tilling when the soils are too wet can further increase the degree of compaction, even below the plow layer. Subsoiling and varying the depth of plowing minimize

compaction and the formation of traffic pans. Regular additions of crop residue, manure, and other organic material improve tilth and minimize surface crusting.

Most of the soils on the flood plains in the survey area have a surface layer of silt loam that is moderate in organic matter content. These soils retain favorable tilth under normal tillage operations. They are susceptible to compaction beneath the tillage zone.

Stones and boulders are a common feature in many of the soils in the survey area. In some places, these soils cannot be tilled because they have too many stones and boulders. In other places, the stones and boulders can be removed.

Soil fertility is medium in most of the soils on the flood plains and low in the soils on uplands. Almost all the soils on uplands have excessive levels of acidity in the upper part of the root zone. Applications of lime are needed to raise the pH level of these soils for the adequate growth of most crops. Most of the soils on flood plains are naturally acid, but the levels may or may not affect crop growth in a given year. On all soils, the amount of lime and fertilizer to be applied should be based on the results of soil tests, the needs of the crop, and the expected level of yield. The Cooperative Extension Service can help to determine the kind and amount of fertilizer to be applied. Soil samples can be organized using the soil survey to identify contrasting soil types.

Organic matter is an important source of nitrogen for crop growth. Also, it helps to maintain good tilth and the rate of water infiltration. The content of organic matter is low in most of the cultivated soils in the uplands and moderate in the soils on flood plains. Throughout the survey area the soils have low levels of phosphorus and low or moderate levels of potassium unless heavy applications of fertilizer have been applied.

Soils along the river bottoms generally flood at some time. Soils that overflow when the stream channel runs full flood frequently. Generally, these are gravelly soils. Soils on the next higher level flood occasionally. Flooding generally occurs between December and May and is of brief duration. Flash flooding as a result of intensive rainfall can occur on the upper reaches of stream bottoms at any time of the year. Flooding history should be considered for cropped areas.

In soils that have a high water table, a drainage system is needed to reduce wetness during spring. Additional drainage measures are needed in some areas of Deible and Racoon soils. Surface ditches or tile drains can be used if suitable outlets are available. In some areas, due to seepage of water into soils that have a high water table, draining is only partly

effective. As a result, these soils are best suited to pasture and wildlife habitat.

Areas of wet soils without a history of cropping may be considered wetland. Before altering any area that may be considered a wetland, the Natural Resources Conservation Service should be contacted in order to insure compliance with existing laws.

### Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

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 include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

*Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

*Capability subclasses* are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The

letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

## Pasture and Hayland Suitability Groups

The soils in Madison County are assigned to a pasture and hayland group according to their suitability for pasture management.

Many different pasture and hayland suitability groups are in the survey area. Over time, the combination of plants best suited to a particular soil and climate has or will become dominant. Plant communities are not static but vary slightly from year to year and from place to place.

The relationship between soils and vegetation was ascertained during this survey. Thus, pasture and hayland suitability groups generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of each plant species. Soil reaction, salt content, and a seasonal high water table also are important. The "Field Office Technical Guide," which is available at local offices of the Natural Resources Conservation Service, can provide specific information about pasture and hayland suitability groups.

Table 6 shows, for each soil, the assigned pasture and hayland suitability group. Specific concerns and recommendations for pasture and hayland management for each group are described in the following paragraphs.

**Group WLB—Wet Loamy Bottom.** A seasonal high water table and flooding are the main management concerns. Plants should be selected accordingly. A seedbed can be easily prepared. A drainage system can improve the growth of deep-rooted species. The hazard of flooding should be considered when a grazing system is designed.

**Group WCB—Wet Clayey Bottom.** Wetness and flooding are the main management concerns. The soils in this group are poorly suited to hay. The hazard of flooding should be considered when a grazing system is designed. Maintaining stands of desirable species is difficult in depressional areas. A drainage system can improve the growth of deep-rooted species.

**Group WCU—Wet Clayey Upland.** Wetness is the main management concern. Maintaining stands of desirable species is difficult in depressional areas. A drainage system can improve the growth of deep-rooted species.

**Group WLO—Wet Loamy Overflow.** Wetness and flooding are the main management concerns. A seedbed can be easily prepared. A drainage system can improve the growth of deep-rooted species. The hazard of flooding should be considered when a grazing system is designed.

**Group LyO—Loamy Overflow.** Flooding is the main management concern. The hazard of flooding should be considered when a grazing system is designed.

**Group LyU—Loamy Upland.** No serious concerns affect pasture and hayland management. Erosion is a hazard in newly seeded areas. Timely seedbed preparation is needed to ensure a good ground cover.

**Group CyU—Clayey Upland.** Pasture and hay crops are effective in controlling erosion. Erosion during seedbed preparation is the main concern. Timely tillage and a quickly established ground cover reduce the hazard of erosion. The forage species that are tolerant of wetness grow best. The production of deep-rooted legumes is limited because of wetness and a restricted rooting depth.

**Group GrU—Gravelly Upland.** The soils in this group generally are not suited to cultivated crops. Droughtiness and erosion are the main management concerns. Seedbeds should be prepared on the contour. Timely seedbed preparation helps to ensure rapid plant growth and a protective ground cover.

**Group MDU—Moderately Deep Upland.** Shallow-rooted species that are tolerant of droughtiness should be selected for planting. Erosion is a serious hazard in newly seeded areas. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

**Group LyP—Loamy Pan.** A few small areas of this group are used for cultivated crops, and some areas are wooded. A dense layer in the subsoil can restrict the rooting depth and result in insufficient soil moisture in dry years. Erosion during seedbed preparation is a hazard. Seedbeds should be

prepared on the contour. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

**Group GrO—Gravelly Overflow.** Most areas of this group have been cleared of trees and are used for pasture and hay. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during periods of flooding help to keep the pasture in good condition.

**Group GrP—Gravelly Pan.** If the soils in this group are used for improved pasture, chert on the surface hinders tillage. Because of seasonal droughtiness, timely planting is needed to ensure an adequate stand. Erosion is a hazard in newly seeded areas. Timely seedbed preparation helps to ensure a protective ground cover.

**Group ShU—Shallow Upland.** Most areas of this group are used for native pasture and are best suited to shallow-rooted species. In some areas tillage is nearly impossible. Broadcast seeding may be necessary. The slope and rock outcrop can hinder mowing in places.

**Group GNS—Generally Not Suited.** The soils in this group generally are not suited to pasture and hay. The suitability for forage species and the use of equipment are limited by the slope, a high content of rock fragments, or both.

## Forest Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for wood crops. Potential productivity of the soils for wood crops is provided in table 7. Interpretive ratings are provided for various aspects of forest management in tables 8a and 8b.

### Forest Productivity

In table 7, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the “National Forestry Manual,” which is available in

local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

*Trees to manage* are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest (fig. 12).

### Forest Management

In tables 8a and 8b, interpretive ratings are given for various aspects of forest management. 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 the specified aspect of forest management. *Not limited* indicates that the soil has features that are very favorable for the specified aspect of management. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified aspect of management. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified aspect of management. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified aspect of management. The limitations can be overcome, but overcoming them generally requires special design, special planning, soil reclamation, specialized equipment, or other procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified aspect of management. The limitations generally cannot be overcome without major soil reclamation, special design, specialized equipment, or other expensive procedures. Poor performance, unsafe conditions, or high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:



**Figure 12.—Oak-pine forest in an area of Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony.**

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation class for the component is based on the most severe limitation.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management factors. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or through the Agency's Website.

Ratings in the column *hand planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. Ratings indicate the expected difficulty of hand planting, which includes the proper placement of root systems of tree seedlings to a depth of up to 12 inches, using standard hand planting tools. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. Ratings indicate the expected difficulty in using a mechanical planter, which includes proper placement of root systems of tree seedlings to a depth of up to 12 inches. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *harvest equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to a water table, and ponding. Ratings indicate the suitability for operating harvest equipment for off-road transport or harvest of logs and/or wood products by ground-based wheeled or tracked equipment.

Ratings in the column *mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The part of the soil from the surface to a depth of about 12 inches is considered in the ratings. Ratings indicate the suitability of using surface-altering soil tillage equipment to prepare the site for planting or seeding.

Ratings in the column *roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads on which trucks transport logs and other wood products from the site.

In table 8b, ratings in the column *erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails.

Ratings in the column *off-road or off-trail erosion* are based on slope and on the soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

Ratings in the column *soil rutting* are based on depth to a water table, rock fragments on or below the surface, surface texture, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. Ratings indicate limitations affecting the hazard or risk of ruts in the uppermost layers of the soil. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with the formation of ruts.

Ratings in the column *log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to a water table, ponding, flooding, and the hazard of soil slippage. Ratings indicate the suitability of the soil at the forest site to serve as a log landing and to allow the efficient and effective use of equipment for the temporary storage and handling of logs.

Ratings in the column *seedling survival* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. Ratings indicate the impact of soil, physiographic, and climatic conditions on the survivability of newly established tree seedlings.

## Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 9 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They

can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

## Recreation

The soils of the survey area are rated in table 10 according to limitations that affect their suitability for recreational use. Soils are rated for camp areas, picnic areas, playgrounds, and paths and trails.

The ratings in the table 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 ratings in the table 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 recreational 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. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately 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. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high 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 numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

The information in table 10 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

*Camp areas* require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The 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, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of

picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Playgrounds* require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Paths and trails* for hiking and horseback riding should require little or no cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, a water table, ponding, flooding, slope, and texture of the surface layer. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to frequent flooding during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

## Wildlife Habitat

Joe Tousignant, wildlife services biologist, Missouri Department of Conservation, helped prepare this section.

Madison County is in the part of the state known as the Ozark Plateau, with a small section in the northeast corner located in the Ozark Border region of Missouri. The majority of the county is in forest cover, consisting of mixed hardwoods and shortleaf pine growing on the steep rocky slopes of the Ozark Mountains.

Most of the farmland in the county is on the best soils, which is located in the valleys and river bottoms. Of the 318,617 acres that make up Madison County, approximately 250,000 acres are used as woodland. The remainder is a mixture of land uses such as pasture, hayland, and residential or urban use. Row

crops are virtually nonexistent, with 1987 being the last recorded date of soybean production of over 500 acres county-wide.

There is much discussion regarding historical vegetation (pre-European settlement) found in Missouri's Ozarks. It is generally assumed that much of the Ozarks was wooded prior to settlement. However, evidence exists that much of the Ozarks was not predominately wooded, but rather was a mixture of grasses and trees also known as savannas. The area with the rockiest soil, especially on south- and west-facing slopes, was often in a similar habitat known as glades.

Much of the Ozarks was barren, savanna, or park-like, where the prairie grasses and forbs were dominant, with an intermixing of scattered oaks. Bison were common in this landscape. The change in vegetation to a more woodland cover type is the result of a reduction in fire since settlement, coupled with a general trend of an increase in precipitation. Vast logging and deforestation of the Ozarks occurred in the late 1800s and early 1900s. This logging, therefore, was the harvest of first-generation timber that was established earlier in the 19th century (Beilmann and Brenner, 1951).

Until the latter quarter of the 20th century, small row-crop farms added an element of wildlife habitat that no longer exists today. Additionally, in the late 1960s, the composition of hayland and pastureland changed greatly. Native warm-season grasses and wildlife-friendly cool-season grasses, such as Kentucky bluegrass and orchardgrass, were replaced with more aggressive pasture grasses of limited value to most wildlife.

Regardless of the historical or present major land uses, Madison County offers excellent wildlife habitat development potential for wildlife that thrive in woodland, savanna, or edge habitats.

The majority of Madison County is drained by two gravel-bottomed and clear-running stream systems, the St. Francis River on the west and the Castor River on the east. Both streams support thriving populations of sport fish, such as smallmouth bass, rock bass, and suckers. The river otter is a recently restored species of wildlife that was previously removed from the streams and wetlands of Madison County.

Wetland acreage is not extensive and primarily exists as old river channels and cutoffs, fens, and seeps. Waterfowl, such as blue and green-winged teal, migrate through the county and make use of wetlands, primarily in the spring and fall. Other species, such as wood ducks, nest and raise their young on the ponds, streams, and wetlands and are present in all months, except the winter months. Large

numbers of farm ponds and small lakes have been built by landowners for livestock water, erosion control, and recreational uses. They add diversity to the wetland habitats and support birds, such as kingfishers, great blue herons, and other wading birds.

Historical accounts from early 20th century often tell of small springs and running streams that have disappeared completely or dried up in the last 100 years. This occurrence is the result of an increasing trend in woodland acreage in the Ozarks. More deep percolation and runoff occur from grasslands than forested areas, where a larger amount of precipitation is lost to evaporation (Beilmann and Brenner, 1951). Wildlife use of dry ridges and the upper end of stream valleys may be diminished by lack of water, or conversely, the habitat can be improved with the addition of new water sources to replace those lost over the last century. Small wildlife ponds constructed very close to the top of wooded ridges, where adequate soil can be found, are often heavily used by mammals, birds, and amphibians.

The forestland typically occurs as stands of pole-sized oak and hickory. The stands have a closed canopy and generally do not have a diverse, well-developed understory. Most have been under short and "high-grade" logging rotations. Decreased numbers of tree cavities often occur under this type of management. Habitat for cavity-nesting wildlife, such as squirrels, raccoons, and woodpeckers, can be enhanced by the creation of tree snags, protection of den trees, and the placement of wooden nest boxes.

Great expanses of unbroken woodland are important to the wildlife species that inhabit the interior of a forest, but there is a scarcity of suitable edge areas where cover types are interspersed. Large, contiguous blocks of timber now exist through much of the county. This is in contrast to pre-settlement conditions when there was a dispersion of forested and non-forested habitats mixed together. The habitat for both game and non-game species can be improved by the construction of woodland openings in large blocks of contiguous forests. These openings can effectively replace those natural openings that are rare today, such as glades and ridgetop savannas. Grasses and forbs growing in forest openings are critical for the growth and survival of turkey poults, as well as many insectivorous birds, even those that require an unfragmented forest for nesting.

Early successional land is managed through disturbance, be it fire or ground disturbance associated with agricultural activities. With the loss of row-crop agriculture and the abandonment of farms

and fields, this habitat is virtually nonexistent. It is doubtful that early successional wildlife species, such as quail and rabbits, will ever return to Madison County in the numbers present when farming was an active land use.

Overall, populations of game species, such as deer, turkeys, and squirrels, are good in Madison County and attract thousands of hunters every year. However, the habitat can be improved over the long term by habitat management, such as the prescribed use of fire, fencing of livestock out of woodlands, and the establishment of riparian corridors adjacent to streams. With the majority of Madison County being forested, the importance of soliciting the assistance of a professional forester in the management of that forest cannot be understated. Increased use of native grasses in pasture and hay plantings and the restoration of such critical natural communities as savannas and glades, where appropriate, are also techniques that could enhance the wildlife habitat in the county.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In tables 11a and 11b, 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 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 the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Habitat is easily established, improved, or maintained. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Habitat can be established, improved, or maintained. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. Habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. *Limited* indicates that

the soil has one or more features that are significant limitations for the specified use. Habitat is difficult to create, improve, or maintain in most places. Management is difficult and must be very intensive. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. Habitat is usually impractical or impossible to create, improve, or maintain. Management would be very difficult, and unsatisfactory results can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation class for the component is based on the most severe limitation.

The elements of wildlife habitat are described in the following paragraphs.

*Grain and seed crops* are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Selection should be made from a list of locally adapted species.

*Grasses and legumes* are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Selection should be made from a list of locally adapted species.

*Upland wild herbaceous plants* are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity,

wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Selection should be made from a list of locally adapted species.

*Upland shrubs and vines* are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs and vines are depth of the root zone, available water capacity, salinity, and soil moisture. Selection should be made from a list of locally adapted species.

*Upland deciduous trees* and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees are depth of the root zone, available water capacity, and wetness. Selection should be made from a list of locally adapted species.

*Upland mixed deciduous-conifer trees* and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, browse, seeds and foliage. Soil properties and features that affect the growth of these trees are depth of the root zone, available water capacity, and wetness. Selection should be made from a list of locally adapted species.

*Riparian herbaceous plants* are annual and perennial native or naturally established grasses and forbs that grow on moist or wet sites. Soil properties and features affecting riparian herbaceous plants are surface texture, wetness, flooding, ponding, and surface stones. Selection should be made from a list of locally adapted species.

*Riparian shrubs, vines, and trees* are bushy woody plants and trees that grow on moist or wet sites. Soil properties and features affecting these plants are surface texture, wetness, flooding, ponding, and surface stones. Selection should be made from a list of locally adapted species.

*Freshwater wetland plants* are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur adjacent to springs, seeps, depressions, bottomlands, marshes, or backwater areas of flood plains. Most areas are ponded for some period of time during the year. Soil properties and features affecting these plants are surface texture, wetness, ponding, and soil reaction. Selection should be made from a list of locally adapted species.

*Irrigated freshwater wetland plants* are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur in areas of cropland, previously cropped areas, and marginal areas associated with cropland and wetlands. These areas may be ponded for some period of time during the year. These areas are generally suitable for restoring wetland features

temporarily or permanently. Soil properties and features affecting these plants are surface texture, permeability, wetness, ponding, and soil reaction. Selection should be made from a list of locally adapted species.

## 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, water management, and waste 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 within a depth of 5 or 6 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 grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary

estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; evaluate sites for agricultural waste management; 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. Table 12 shows the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

The ratings in the table 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. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately 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. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and

moderate or high 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 numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*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 a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Small commercial buildings* are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of

maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, a water table, and ponding.

*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; a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

### Sanitary Facilities

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for sanitary facilities. Soils are rated for septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill.

The ratings in the table 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 sanitary facilities. *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. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately 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. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high 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 numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*Septic tank absorption fields* are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent,

construction and maintenance of the system, and public health. Permeability, a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may be contaminated. Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, hillside seepage, and contamination of ground water, can affect public health.

*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, 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, 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, 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, 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, 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 and Excavating

The soils of the survey area are rated in table 14 as a source of roadfill, sand, gravel, or topsoil. Normal compaction, minor processing, and other standard construction practices are assumed. The soils are also rated according to limitations that affect their suitability for shallow excavations. The ratings in the table are both verbal and numerical.

Rating class terms, as follows, are used to indicate the extent to which the soils are limited by soil features that affect their use as a source for roadfill, sand, gravel, or topsoil or their suitability for shallow excavations. *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. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately 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. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high 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 numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

*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 the table, only the probability 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 lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of the thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

*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, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

## Water Management

The soils of the survey area are rated in table 15 according to limitations that affect their suitability for water management. Soils are rated for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways. Restrictive features that affect each soil for the specified use are also listed in the table.

The ratings in the table 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 specified use. *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. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately 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. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high 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 numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms and numerical ratings are

shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*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. Slope can affect the storage capacity of the reservoir area.

*Drainage* is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, permeability, depth to a water table, ponding, slope, and flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the likelihood that cutbanks will cave. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. The availability of drainage outlets is not considered in the ratings.

*Irrigation* is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to a water table, ponding, flooding, available water capacity, intake rate, permeability, erodibility, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone, reaction, and the amount of salts, sodium, sulfur, lime, or gypsum.

*Terraces and diversions* are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, a water table, ponding, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, erodibility, an excessively coarse texture, and restricted permeability adversely affect maintenance.

*Grassed waterways* are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, a water table, slope, and depth to bedrock affect the construction of grassed waterways. Erodibility, soil moisture regime, available water capacity, restricted rooting depth, restricted permeability, and toxic substances, such as salts and sodium, affect the growth and maintenance of the grass after construction.

## Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 16 shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 mg/l. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 mg/l. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater through irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (slow rate treatment of wastewater and rapid infiltration of wastewater).

The ratings in the table 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 specified use. *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. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately 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. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high 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 numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited .....	0.00
Slightly limited .....	0.01 to 0.30
Moderately limited .....	0.31 to 0.60
Limited .....	0.61 to 0.99
Very limited .....	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

*Land application of manure and food-processing waste* not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or

otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

*Land application of municipal sewage sludge* not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge.

*Disposal of wastewater by irrigation* not only

disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also improves crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals.

*Slow rate treatment of wastewater* is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water percolates to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

*Rapid infiltration of wastewater* is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil, eventually reaching the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than

72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of groundwater pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the

design, construction, and performance of the system. A water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat
		Bu	Bu	Bu	Bu
73055:					
Alred-----	7e	---	---	---	---
Rueter-----	7e	---	---	---	---
73139:					
Poynor-----	6e	---	---	---	---
Clarksville-----	6e	---	---	---	---
Scholten-----	6e	---	---	---	---
73140:					
Clarksville-----	7s	---	---	---	---
Scholten-----	7s	---	---	---	---
73141:					
Firebaugh-----	3e	80.00	75.00	32.00	35.00
73142:					
Firebaugh-----	4e	70.00	55.00	25.00	30.00
73143:					
Courtois-----	3e	75.00	---	---	35.00
73144:					
Courtois-----	4e	65.00	---	---	25.00
73145:					
Crider-----	3e	100.00	---	45.00	45.00
73146:					
Marquand-----	3e	85.00	85.00	35.00	47.00
73147:					
Fourche-----	3e	110.00	95.00	40.00	45.00
73148:					
Jonca-----	3e	70.00	70.00	32.00	35.00
73149:					
Caneyville-----	3e	85.00	80.00	32.00	30.00
Bucklick-----	3e	90.00	85.00	35.00	35.00
73150:					
Caneyville-----	4e	75.00	---	---	---
Bucklick-----	4e	80.00	---	---	---
73151:					
Caneyville-----	6e	---	---	---	---
Gasconade-----	6e	---	---	---	---
Bucklick-----	6e	---	---	---	---
73152:					
Lily-----	3e	70.00	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat
		Bu	Bu	Bu	Bu
73152: Ramsey-----	6e	---	---	---	---
73153: Lily-----	4e	---	---	---	---
Ramsey-----	6e	---	---	---	---
73154: Ramsey-----	6e	---	---	---	---
Rock outcrop-----	8s	---	---	---	---
73155: Gasconade-----	7s	---	---	---	---
Rock outcrop-----	8s	---	---	---	---
73156: Alred-----	6s	---	---	---	---
Gepp-----	4e	---	---	---	---
73157: Captina-----	3e	80.00	75.00	32.00	35.00
74644: Deible-----	4w	91.00	81.00	34.00	37.00
74645: Higdon-----	2w	100.00	80.00	35.00	40.00
74646: Cornwall-----	3e	80.00	80.00	25.00	30.00
74647: Cornwall-----	4e	70.00	---	---	---
74648: Aslinger-----	3e	90.00	---	---	43.00
74649: Aslinger-----	4e	70.00	---	---	---
Waben-----	4s	70.00	---	---	---
74650: Higdon-----	2w	95.00	85.00	35.00	---
74684: Raccoon-----	3w	90.00	80.00	34.00	40.00
75381: Bearthicket-----	1	125.00	---	45.00	40.00
75395: Jamesfin-----	2w	108.00	94.00	40.00	44.00
75408: Secesh-----	2w	---	---	---	41.00
75409: Relfe-----	4s	65.00	---	---	---
75410: Relfe-----	4s	60.00	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat
		<u>Bu</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>
75411: Tilk-----	3s	70.00	---	---	---
75416: Gladden-----	2w	90.00	70.00	30.00	35.00
77000: Killarney-----	7s	---	---	---	---
Frenchmill-----	7s	---	---	---	---
77001: Loughboro-----	3w	85.00	75.00	30.00	35.00
77002: Delassus-----	3e	80.00	70.00	27.00	30.00
77003: Delassus-----	4e	70.00	65.00	30.00	30.00
77004: Irondale-----	7s	---	---	---	---
77005: Hassler-----	7s	---	---	---	---
Syenite-----	7s	---	---	---	---
77006: Roselle-----	3e	90.00	---	---	---
77007: Taumsauk-----	7s	---	---	---	---
Irondale-----	7s	---	---	---	---
Rock outcrop-----	8s	---	---	---	---
77008: Hassler-----	4e	70.00	---	---	---
77009: Trackler-----	3e	75.00	70.00	30.00	35.00
77010: Trackler-----	4s	70.00	---	---	---
Irondale-----	4s	55.00	---	---	---
78250: Skrainka-----	3e	100.00	---	---	35.00
78251: Skrainka-----	4e	90.00	---	---	30.00
99001. Water					
99006: Psamments-----	7s	---	---	---	---
99008: Udorthents-----	8s	---	---	---	---
Dumps-----	8s	---	---	---	---

Table 6.--Pasture and Hayland Groups and Yields per Acre of Hay and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Pasture and hayland group	Orchardgrass-	Orchardgrass-	Switchgrass	Tall fescue	Tall fescue
		red clover	red clover hay		Tons*	Tons*
		Tons*	Tons*	Tons*	Tons*	Tons*
73055:						
Alred-----	GrU	5.8	---	---	5.3	---
Rueter-----	GrU	5.8	---	---	5.3	---
73139:						
Poynor-----	GrU	5.8	---	---	5.3	---
Clarksville-----	GrU	5.8	---	---	5.3	---
Scholten-----	GrP	1.1	---	---	2.2	---
73140:						
Clarksville-----	GNS	---	---	---	---	---
Scholten-----	GNS	---	---	---	---	---
73141, 73142:						
Firebaugh-----	LyU	7.4	---	---	6.7	---
73143, 73144:						
Courtois-----	CyU	7.5	---	---	7.0	---
73145:						
Crider-----	LyU	7.4	---	---	6.7	---
73146:						
Marquand-----	LyU	7.4	---	---	6.7	---
73147:						
Fourche-----	LyU	7.4	---	---	6.7	---
73148:						
Jonca-----	LyP	4.8	---	---	5.0	---
73149, 73150:						
Caneyville-----	MDU	5.8	---	---	5.3	---
Bucklick-----	CyU	7.5	---	---	7.0	---
73151:						
Caneyville-----	GNS	---	---	---	---	---
Gasconade-----	GNS	---	---	---	---	---
Bucklick-----	GNS	---	---	---	---	---
73152, 73153:						
Lily-----	MDU	5.8	---	---	5.3	---
Ramsey-----	ShU	---	---	---	1.4	---
73154:						
Ramsey-----	GNS	---	---	---	---	---
Rock outcrop.						

See footnote at end of table.

Table 6.--Pasture and Hayland Groups and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Pasture and hayland group	Orchardgrass-	Orchardgrass-	Switchgrass	Tall fescue	Tall fescue
		red clover	red clover hay			hay
		Tons*	Tons*	Tons*	Tons*	Tons*
73155: Gasconade-----	ShU	---	---	---	1.4	---
Rock outcrop.						
73156: Alred-----	GrU	5.8	---	---	5.3	---
Gepp-----	GrU	5.8	---	---	5.3	---
73157: Captina-----	LyP	4.8	---	---	5.0	---
74644: Deible-----	WCB	5.8	---	---	5.3	---
74645: Higdon-----	WLO	8.5	---	---	8.0	---
74646, 74647: Cornwall-----	LyU	7.4	---	---	6.7	---
74648: Aslinger-----	LyU	7.4	---	---	6.7	---
74649: Aslinger-----	LyO	7.4	---	---	6.8	---
Waben-----	GrO	1.2	---	---	2.7	---
74650: Higdon-----	WLO	8.5	---	---	8.0	---
74684: Racoon-----	WLB	7.1	---	---	8.1	---
75381: Bearthicket-----	LyO	7.4	---	---	6.8	---
75395: Jamesfin-----	LyO	7.4	---	---	6.8	---
75408: Secesh-----	LyO	7.4	---	---	6.8	---
75409, 75410: Relfe-----	SyO	3.2	---	---	3.2	---
75411: Tilk-----	GrO	1.2	---	---	2.7	---
75416: Gladden-----	LyO	7.4	---	---	6.8	---
77000: Killarney-----	GNS	---	---	---	---	---
Frenchmill-----	GNS	---	---	---	---	---
77001: Loughboro-----	WCU	7.4	---	---	8.2	---

See footnote at end of table.

Table 6.--Pasture and Hayland Groups and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Pasture and hayland group	Orchardgrass-	Orchardgrass-	Switchgrass	Tall fescue	Tall fescue hay
		red clover	red clover hay			
		Tons*	Tons*	Tons*	Tons*	Tons*
77002, 77003: Delassus-----	LyP	4.8	---	---	5.0	---
77004: Irondale-----	GNS	---	---	---	---	---
77005: Hassler-----	GrU	5.8	---	---	5.3	---
Syenite-----	MDU	5.8	---	---	5.3	---
77006: Roselle-----	LyU	7.4	---	---	6.7	---
77007: Taumsauk-----	GNS	---	---	---	---	---
Irondale-----	GNS	---	---	---	---	---
Rock outcrop.						
77008: Hassler-----	GrU	5.8	---	---	5.3	---
77009: Trackler-----	GrU	5.8	---	---	5.3	---
77010: Trackler-----	GrU	5.8	---	---	5.3	---
Irondale-----	MDU	5.8	---	---	5.3	---
78250, 78251: Skrainka-----	CyU	7.5	---	---	7.0	---
99001. Water						
99006. Psamments						
99008: Udorthents.						
Dumps.						

\* Yields are for tons of total above-ground production.

Table 7.--Forest Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available.)

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
73055:				
Alred-----	black oak-----	60	43	black oak,
	shortleaf pine-----	60	86	shortleaf pine,
	white oak-----	56	43	white oak
Rueter-----	black oak-----	53	43	black oak,
	hickory-----	---	---	shortleaf pine
	post oak-----	45	29	
73139:				
Poynor-----	black oak-----	60	43	black oak,
	shortleaf pine-----	58	86	shortleaf pine
	white oak-----	54	43	
Clarksville-----	black oak-----	61	43	black oak, northern
	northern red oak-----	---	---	red oak, shortleaf
	shortleaf pine-----	58	86	pine, white oak
	white oak-----	55	43	
Scholten-----	black oak-----	50	29	black oak, eastern
	blackjack oak-----	---	---	redcedar,
	hickory-----	---	---	shortleaf pine
	post oak-----	---	---	
73140:				
Clarksville-----	black oak-----	61	43	black oak, northern
	northern red oak-----	---	---	red oak, shortleaf
	shortleaf pine-----	58	86	pine, white oak
	white oak-----	55	43	
Scholten-----	black oak-----	50	29	black oak, eastern
	blackjack oak-----	---	---	redcedar,
	hickory-----	---	---	shortleaf pine
	post oak-----	---	---	
73141:				
Firebaugh-----	black oak-----	60	43	black oak, scarlet
	eastern redcedar-----	---	---	oak, shortleaf
	post oak-----	---	---	pine, white oak
	scarlet oak-----	---	---	
	shortleaf pine-----	58	86	
	white oak-----	55	43	
73142:				
Firebaugh-----	black oak-----	65	43	black oak, northern
	eastern redcedar-----	40	43	red oak, shortleaf
	northern red oak-----	65	43	pine, white oak
	post oak-----	---	---	
	shortleaf pine-----	64	100	
	white oak-----	60	43	
73143, 73144:				
Courtois-----	northern red oak-----	---	---	northern red oak,
	shortleaf pine-----	65	100	white oak
	white oak-----	60	43	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity		Volume of wood fiber cu ft/ac	Trees to manage
	Common trees	Site index		
73145: Crider-----	black oak-----	65	43	northern red oak, scarlet oak, white oak
	northern red oak----	65	43	
	scarlet oak-----	---	---	
	white oak-----	63	43	
73146: Marquand-----	black oak-----	65	43	black oak, northern red oak, white ash, white oak
	northern red oak----	---	---	
	white ash-----	---	---	
	white oak-----	63	43	
73147: Fourche-----	black oak-----	---	---	black oak, northern red oak, white ash, white oak
	northern red oak----	---	---	
	white ash-----	---	---	
	white oak-----	62	43	
73148: Jonca-----	black oak-----	62	29	black oak, scarlet oak, shortleaf pine, white oak
	northern red oak----	---	---	
	shortleaf pine-----	60	86	
	white oak-----	43	43	
73149, 73150: Caneyville-----	black oak-----	56	43	black oak, scarlet oak
	eastern redcedar----	---	---	
	hickory-----	---	---	
	post oak-----	50	29	
	scarlet oak-----	---	---	
	white oak-----	---	---	
Bucklick-----	black oak-----	56	43	black oak, scarlet oak
	northern red oak----	---	---	
	post oak-----	---	---	
	white oak-----	54	43	
73151: Caneyville-----	black oak-----	57	43	black oak, scarlet oak
	eastern redcedar----	44	43	
	hickory-----	---	---	
	post oak-----	50	29	
	scarlet oak-----	---	---	
	white oak-----	---	---	
Gasconade-----	blackjack oak-----	---	---	eastern redcedar
	chinkapin oak-----	40	29	
	eastern redcedar----	27	29	
	post oak-----	---	---	
Bucklick-----	black oak-----	56	43	black oak, scarlet oak
	northern red oak----	---	---	
	post oak-----	---	---	
	white oak-----	54	43	
73152: Lily-----	black oak-----	---	---	northern red oak, scarlet oak, shortleaf pine, white oak
	northern red oak----	78	86	
	scarlet oak-----	58	43	
	shortleaf pine-----	58	100	
	white oak-----	44	57	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber  cu ft/ac	
73152: Ramsey-----	black oak-----	58	43	black oak, northern red oak, shortleaf pine
	northern red oak----	58	43	
	shortleaf pine-----	55	86	
	white oak-----	---	---	
73153: Lily-----	black oak-----	---	---	black oak, northern red oak, scarlet oak, white oak
	northern red oak----	54	43	
	post oak-----	---	---	
	shortleaf pine-----	58	86	
	white oak-----	44	29	
Ramsey-----	black oak-----	58	43	black oak, northern red oak, shortleaf pine
	northern red oak----	56	43	
	shortleaf pine-----	55	43	
	white oak-----	---	---	
73154: Ramsey-----	black oak-----	58	43	black oak, northern red oak, shortleaf pine
	northern red oak----	56	43	
	shortleaf pine-----	55	43	
	white oak-----	---	---	
Rock outcrop.				
73155: Gasconade-----	blackjack oak-----	---	---	eastern redcedar
	chinkapin oak-----	40	29	
	eastern redcedar----	27	29	
	post oak-----	---	---	
Rock outcrop.				
73156: Alred-----	black oak-----	60	43	black oak, shortleaf pine, white oak
	shortleaf pine-----	60	86	
	white oak-----	56	43	
Gepp-----	black oak-----	58	43	black oak, shortleaf pine, white oak
	shortleaf pine-----	55	86	
	white oak-----	55	43	
73157: Captina-----	black oak-----	58	43	black oak, scarlet oak, shortleaf pine
	eastern redcedar----	---	---	
	northern red oak----	---	---	
	post oak-----	---	---	
	scarlet oak-----	---	---	
	shortleaf pine-----	60	86	
	white oak-----	54	43	
74644: Deible-----	green ash-----	---	---	eastern cottonwood, green ash, pin oak, silver maple
	northern red oak----	---	---	
	pin oak-----	76	57	
	silver maple-----	---	---	
74645: Higdon-----	white oak-----	65	43	black oak, eastern cottonwood, green ash, pecan, pin oak, white oak

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
74646: Cornwall-----	black oak-----	60	43	shortleaf pine, white oak
	eastern redcedar----	---	---	
	scarlet oak-----	60	43	
	shortleaf pine-----	---	---	
	white oak-----	---	---	
74647: Cornwall-----	black oak-----	65	43	shortleaf pine, white oak
	eastern redcedar----	45	43	
	northern red oak----	65	43	
	post oak-----	---	---	
	shortleaf pine-----	60	86	
	white oak-----	60	43	
74648: Aslinger-----	black oak-----	60	43	black walnut, shortleaf pine, white oak
	scarlet oak-----	60	43	
	shortleaf pine-----	---	---	
	white oak-----	---	---	
74649: Aslinger-----	black oak-----	60	43	scarlet oak, shortleaf pine
	eastern redcedar----	---	---	
	scarlet oak-----	60	43	
	shortleaf pine-----	---	---	
	white oak-----	---	---	
Waben-----	black oak-----	---	---	eastern redcedar, shortleaf pine
	eastern redcedar----	40	43	
	post oak-----	---	---	
	shortleaf pine-----	---	---	
74650: Higdon-----	American sycamore----	---	---	black walnut, green ash, pecan, white oak
	black walnut-----	---	---	
	green ash-----	---	---	
	white oak-----	65	43	
74684: Racoon-----	green ash-----	---	---	green ash, pin oak, red maple
	pin oak-----	80	57	
	white oak-----	---	---	
75381: Bearthicket-----	American sycamore----	---	---	black walnut, cherrybark oak, green ash, northern red oak, white oak
	black walnut-----	---	---	
	common hackberry----	---	---	
	pin oak-----	96	86	
	red maple-----	---	---	
75395: Jamesfin-----	American sycamore----	---	---	black walnut, eastern cottonwood, green ash
	black walnut-----	90	57	
	eastern cottonwood--	---	---	
	river birch-----	---	---	
	white ash-----	102	57	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber  cu ft/ac	
75408: Secesh-----	American sycamore----	---	---	American sycamore,
	black oak-----	---	---	black oak,
	black walnut-----	---	---	shortleaf pine
	shortleaf pine-----	---	---	
	white oak-----	60	43	
75409, 75410: Relfe-----	American sycamore----	---	---	black oak,
	black oak-----	60	43	shortleaf pine
	shortleaf pine-----	---	---	
	white oak-----	55	43	
75411: Tilk-----	black oak-----	50	29	eastern redcedar,
	eastern redcedar-----	---	---	shortleaf pine
	post oak-----	45	29	
	scarlet oak-----	50	29	
	shortleaf pine-----	55	86	
75416: Gladden-----	American sycamore----	85	86	black walnut,
	bitternut hickory----	---	---	northern red oak,
	black walnut-----	---	---	white ash, white
	blackgum-----	---	---	oak
	northern red oak----	---	---	
	white oak-----	75	57	
77000: Killarney-----	northern red oak----	60	43	northern red oak,
	shortleaf pine-----	55	72	shortleaf pine
	white oak-----	55	43	
Frenchmill-----	northern red oak----	70	57	northern red oak,
	shortleaf pine-----	60	86	shortleaf pine,
	white oak-----	65	43	white oak
77001: Loughboro-----	northern red oak----	---	---	green ash, pin oak,
	white oak-----	52	29	white oak
77002: Delassus-----	black oak-----	---	---	black oak, northern
	northern red oak----	60	43	red oak, shortleaf
	shortleaf pine-----	---	---	pine
	white oak-----	55	43	
77003: Delassus-----	black oak-----	---	---	black oak, northern
	northern red oak----	60	43	red oak, shortleaf
	shortleaf pine-----	---	---	pine, white oak
	white oak-----	47	29	
77004: Irondale-----	black oak-----	48	29	black oak, scarlet
	northern red oak----	47	29	oak, shortleaf
	post oak-----	---	---	pine
	shortleaf pine-----	48	56	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity		Volume of wood fiber cu ft/ac	Trees to manage
	Common trees	Site index		
77005: Hassler-----	black oak-----	48	29	black oak, scarlet oak, shortleaf pine
	northern red oak----	47	29	
	shortleaf pine-----	---	---	
	white oak-----	62	43	
Syenite-----	black oak-----	---	---	northern red oak, shortleaf pine, white oak
	northern red oak----	---	---	
	white oak-----	46	29	
77006: Roselle-----	black oak-----	55	43	northern red oak, shortleaf pine, white oak
	eastern redcedar----	40	43	
	shortleaf pine-----	55	63	
	white oak-----	50	29	
77007: Taumsauk.				
Irondale-----	black oak-----	48	29	black oak, scarlet oak, shortleaf pine
	northern red oak----	47	29	
	post oak-----	---	---	
	shortleaf pine-----	48	56	
Rock outcrop.				
77008: Hassler-----	black oak-----	---	---	black oak, northern red oak, shortleaf pine, white oak
	northern red oak----	60	43	
	shortleaf pine-----	---	---	
	white oak-----	47	29	
77009: Trackler-----	black oak-----	55	43	black oak, northern red oak, shortleaf pine
	northern red oak----	---	---	
	shortleaf pine-----	58	86	
	white oak-----	---	---	
77010: Trackler-----	black oak-----	55	43	black oak, northern red oak, shortleaf pine
	northern red oak----	---	---	
	shortleaf pine-----	58	86	
	white oak-----	---	---	
Irondale-----	black oak-----	48	29	black oak, scarlet oak, shortleaf pine
	northern red oak----	47	29	
	post oak-----	---	---	
	shortleaf pine-----	48	63	
78250, 78251: Skrainka-----	black oak-----	---	---	black oak, white oak
	eastern redcedar----	---	---	
	northern red oak----	---	---	
	white oak-----	60	43	

Table 8a.--Forest 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 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055:										
Alred-----	Slightly limited ~slope (slightly limited)	0.14	Limited ~slope (limited) ~surface stones (moderately limited)	0.99	Moderately limited ~slope (moderately limited)	0.60	Moderately limited ~slope (moderately limited)	0.60	Very limited ~slope (very limited)	1.00
Rueter-----	Moderately limited ~small stones (moderately limited) ~slope (slightly limited)	0.53 0.14	Limited ~slope (limited) ~small stones (moderately limited) ~surface stones (moderately limited)	0.99 0.53 0.45	Moderately limited ~slope (moderately limited)	0.60	Moderately limited ~slope (moderately limited) ~small stones (moderately limited)	0.60 0.49	Very limited ~slope (very limited) ~slippage potential (moderately limited)	1.00 0.50
73139:										
Poynor-----	Slightly limited ~small stones (slightly limited)	0.14	Moderately limited ~slope (moderately limited) ~small stones (slightly limited) ~surface stones (slightly limited)	0.47 0.14 0.02	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50
Clarksville---	Slightly limited ~small stones (slightly limited)	0.04	Moderately limited ~slope (moderately limited) ~small stones (slightly limited) ~surface stones (slightly limited)	0.47 0.04 0.02	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50
Scholten-----	Slightly limited ~small stones (slightly limited)	0.06	Moderately limited ~slope (moderately limited) ~small stones (slightly limited) ~surface stones (slightly limited)	0.47 0.06 0.02	Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50 0.43	Moderately limited ~seasonal wetness (moderately limited)	0.43	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73140: Clarksville----	Slightly limited ~slope (slightly limited)	0.20	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.79	Limited ~slope (limited)	0.79	Very limited ~slope (very limited)	1.00
	~small stones (slightly limited)	0.17	~surface stones (moderately limited)	0.38	~low strength (moderately limited)	0.50			~slippage potential (limited)	0.90
			~small stones (slightly limited)	0.17					~low strength (moderately limited)	0.50
Scholten-----	Limited ~small stones (limited)	0.80	Limited ~slope (limited)	0.99	Moderately limited ~slope (moderately limited)	0.60	Limited ~small stones (limited)	0.80	Very limited ~slope (very limited)	1.00
	~slope (slightly limited)	0.14	~small stones (limited)	0.80			~slope (moderately limited)	0.60	~slippage potential (limited)	0.90
			~surface stones (moderately limited)	0.38						
73141: Firebaugh-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Slightly limited ~seasonal wetness (slightly limited)	0.23	Slightly limited ~seasonal wetness (slightly limited)	0.23	Moderately limited ~slippage potential (moderately limited)	0.50
									~seasonal wetness (slightly limited)	0.23
73142: Firebaugh-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited)	0.50	Slightly limited ~seasonal wetness (slightly limited)	0.23	Limited ~slope (limited)	0.76
					~seasonal wetness (slightly limited)	0.23			~slippage potential (moderately limited)	0.50
									~low strength (moderately limited)	0.50
73143: Courtois-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~slippage potential (moderately limited)	0.50
									~low strength (moderately limited)	0.50
73144: Courtois-----	Not limited		Moderately limited ~slope (moderately limited)	0.43	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited)	0.68
									~slippage potential (moderately limited)	0.50
									~low strength (moderately limited)	0.50

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73145: Crider-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50
73146: Marquand-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.15	Slightly limited ~seasonal wetness (slightly limited)	0.15	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.15
73147: Fourche-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.10	Slightly limited ~seasonal wetness (slightly limited)	0.10	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.10
73148: Jonca-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.10	Slightly limited ~seasonal wetness (slightly limited)	0.10	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.10
73149: Caneyville-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50
Bucklick-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73150: Caneyville-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76  0.50 0.50
Bucklick-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76  0.50 0.50
73151: Caneyville-----	Slightly limited ~slope (slightly limited)	0.07	Limited ~slope (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.30	Moderately limited ~slope (moderately limited)	0.30	Very limited ~slope (very limited) ~slippage potential (limited) ~low strength (moderately limited)	1.00  0.90 0.50
Gasconade-----	Moderately limited ~stickiness (surface) (moderately limited) ~large stones (moderately limited) ~slope (slightly limited)	0.50 0.42 0.07	Limited ~slope (limited) ~large stones (limited) ~stickiness (surface) (moderately limited)	0.80 0.76 0.50	Moderately limited ~low strength (moderately limited) ~stickiness (surface) (moderately limited) ~slope (moderately limited)	0.50 0.50 0.30	Moderately limited ~stickiness (surface) (moderately limited) ~large stones (moderately limited) ~slope (moderately limited)	0.50 0.42 0.30	Very limited ~slope (very limited) ~slippage potential (limited) ~low strength (moderately limited)	1.00  0.90 0.50
Bucklick-----	Slightly limited ~slope (slightly limited)	0.07	Limited ~slope (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.30	Moderately limited ~slope (moderately limited)	0.30	Very limited ~slope (very limited) ~slippage potential (limited) ~low strength (moderately limited)	1.00  0.90 0.50
73152: Lily-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73152: Ramsey-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Not limited		Not limited		Moderately limited ~slippage potential (moderately limited)	0.50
73153: Lily-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Not limited		Not limited		Limited ~slope (limited) ~slippage potential (moderately limited)	0.76 0.50
Ramsey-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Not limited		Not limited		Limited ~slope (limited) ~slippage potential (moderately limited)	0.76 0.50
73154: Ramsey-----	Slightly limited ~slope (slightly limited)	0.04	Limited ~slope (limited)	0.68	Slightly limited ~slope (slightly limited)	0.15	Slightly limited ~slope (slightly limited)	0.15	Very limited ~slope (very limited) ~slippage potential (moderately limited)	1.00 0.50
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73155: Gasconade-----	Moderately limited ~stickiness (surface) (moderately limited) ~slope (slightly limited)	0.50 0.05	Limited ~slope (limited) ~stickiness (surface) (moderately limited)	0.72 0.50	Moderately limited ~low strength (moderately limited) ~stickiness (surface) (moderately limited) ~slope (slightly limited)	0.50 0.50 0.20	Moderately limited ~stickiness (surface) (moderately limited) ~slope (slightly limited)	0.50 0.20	Very limited ~slope (very limited) ~slippage potential (limited) ~low strength (moderately limited)	1.00 0.90 0.50
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73156: Alred-----	Not limited		Moderately limited ~slope (moderately limited) ~surface stones (slightly limited)	0.47 0.02	Not limited		Not limited		Limited ~slippage potential (limited) ~slope (limited)	0.90 0.76

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73156: Gepp-----	Moderately limited ~small stones (moderately limited)	0.31	Moderately limited ~slope (moderately limited) ~small stones (moderately limited) ~surface stones (slightly limited)	0.47 0.31 0.02	Not limited		Slightly limited ~small stones (slightly limited)	0.12	Limited ~slippage potential (limited) ~slope (limited)	0.90 0.76
73157: Captina-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.15	Slightly limited ~seasonal wetness (slightly limited)	0.15	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.15
74644: Deible-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91 0.50	Limited ~seasonal wetness (limited)	0.91	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91 0.50
74645: Higdon-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.29	Slightly limited ~seasonal wetness (slightly limited)	0.29	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.29
74646: Cornwall-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.15	Slightly limited ~seasonal wetness (slightly limited)	0.15	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.15

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74647: Cornwall-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.15	Slightly limited ~seasonal wetness (slightly limited)	0.15	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50
74648: Aslinger-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.20	Slightly limited ~seasonal wetness (slightly limited)	0.20	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.20
74649: Aslinger-----	Not limited		Moderately limited ~slope (moderately limited)	0.34	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.20	Slightly limited ~seasonal wetness (slightly limited)	0.20	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.50 0.45
Waben-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50
74650: Higdon-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.25	Slightly limited ~seasonal wetness (slightly limited)	0.25	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.60 0.50 0.25
74684: Racoon-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Very limited ~seasonal wetness (very limited) ~low strength (moderately limited)	1.00 0.50	Very limited ~seasonal wetness (very limited)	1.00	Very limited ~seasonal wetness (very limited) ~low strength (moderately limited)	1.00 0.50

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75381: Bearthicket----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50
75395: Jamesfin-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60 0.50
75408: Secesh-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited)	0.50
75409: Relfe-----	Not limited		Not limited		Not limited		Not limited		Moderately limited ~flooding (moderately limited)	0.60
75410: Relfe-----	Slightly limited ~small stones (slightly limited)	0.02	Slightly limited ~small stones (slightly limited)	0.02	Not limited		Not limited		Very limited ~flooding (very limited)	1.00
75411: Tilk-----	Limited ~small stones (limited)	0.77	Limited ~small stones (limited)	0.77	Not limited		Limited ~small stones (limited)	0.78	Moderately limited ~slippage potential (moderately limited)	0.50
75416: Gladden-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~flooding (moderately limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.60 0.50 0.50

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77000:										
Killarney-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~slope (slightly limited)	0.20	~slope (very limited)	1.00	~slope (limited)	0.79	~slope (limited)	0.79	~large surface stones (very limited)	1.00
	~small stones (slightly limited)	0.17	~large stones (slightly limited)	0.18	~seasonal wetness (slightly limited)	0.10	~seasonal wetness (slightly limited)	0.10	~surface stones (limited)	0.77
Frenchmill-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.77	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~slope (slightly limited)	0.20	~slope (very limited)	1.00	~slope (limited)	0.79	~slope (limited)	0.79	~large surface stones (very limited)	1.00
	~small stones (slightly limited)	0.07	~large stones (moderately limited)	0.33			~large stones (slightly limited)	0.06	~surface stones (limited)	0.77
77001:										
Loughboro-----	Not limited		Not limited		Moderately limited		Moderately limited		Moderately limited	
					~low strength (moderately limited)	0.50	~seasonal wetness (moderately limited)	0.45	~slippage potential (moderately limited)	0.50
					~seasonal wetness (moderately limited)	0.45			~low strength (moderately limited)	0.50
									~seasonal wetness (moderately limited)	0.45
77002:										
Delassus-----	Not limited		Slightly limited		Moderately limited		Slightly limited		Moderately limited	
			~slope (slightly limited)	0.10	~low strength (moderately limited)	0.50	~seasonal wetness (slightly limited)	0.16	~slippage potential (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.16			~low strength (moderately limited)	0.50
									~seasonal wetness (slightly limited)	0.16
77003:										
Delassus-----	Moderately limited		Limited		Moderately limited		Moderately limited		Limited	
	~large stones (moderately limited)	0.38	~large stones (limited)	0.70	~low strength (moderately limited)	0.50	~large stones (moderately limited)	0.38	~slope (limited)	0.76
	~small stones (slightly limited)	0.09	~slope (moderately limited)	0.47	~seasonal wetness (slightly limited)	0.16	~seasonal wetness (slightly limited)	0.16	~slippage potential (moderately limited)	0.50
			~surface stones (moderately limited)	0.38					~low strength (moderately limited)	0.50

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77004:										
Irondale-----	Moderately limited ~surface stones (moderately limited)	0.42	Limited ~slope (limited)	0.99	Moderately limited ~slope (moderately limited)	0.60	Moderately limited ~slope (moderately limited)	0.60	Very limited ~slope (very limited)	1.00
	~small stones (slightly limited)	0.19	~surface stones (limited)	0.79	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~slope (slightly limited)	0.14	~small stones (slightly limited)	0.19	~low strength (moderately limited)	0.50			~slippage potential (moderately limited)	0.50
77005:										
Hassler-----	Slightly limited ~slope (slightly limited)	0.02	Limited ~slope (limited)	0.64	Moderately limited ~low strength (moderately limited)	0.50	Slightly limited ~seasonal wetness (slightly limited)	0.17	Very limited ~slope (very limited)	1.00
			~surface stones (slightly limited)	0.02	~seasonal wetness (slightly limited)	0.17	~slope (slightly limited)	0.10	~slippage potential (moderately limited)	0.50
					~slope (slightly limited)	0.10			~low strength (moderately limited)	0.50
Syenite-----	Slightly limited ~slope (slightly limited)	0.05	Limited ~slope (limited)	0.72	Moderately limited ~low strength (moderately limited)	0.50	Slightly limited ~slope (slightly limited)	0.20	Very limited ~slope (very limited)	1.00
			~surface stones (slightly limited)	0.02	~slope (slightly limited)	0.20			~slippage potential (moderately limited)	0.50
									~low strength (moderately limited)	0.50
77006:										
Roselle-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slippage potential (limited)	0.90
									~low strength (moderately limited)	0.50
77007:										
Taumsauk-----	Moderately limited ~surface stones (moderately limited)	0.42	Limited ~slope (limited)	0.99	Moderately limited ~slope (moderately limited)	0.60	Moderately limited ~slope (moderately limited)	0.60	Very limited ~slope (very limited)	1.00
	~slope (slightly limited)	0.14	~surface stones (limited)	0.79	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~small stones (slightly limited)	0.02	~small stones (slightly limited)	0.02	~low strength (moderately limited)	0.50			~slippage potential (moderately limited)	0.50

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77007: Irondale-----	Moderately limited ~surface stones (moderately limited)	0.42	Limited ~slope (limited)	0.99	Moderately limited ~slope (moderately limited)	0.60	Moderately limited ~slope (moderately limited)	0.60	Very limited ~slope (very limited)	1.00
	~small stones (slightly limited)	0.28	~surface stones (limited)	0.79	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~slope (slightly limited)	0.14	~small stones (slightly limited)	0.28			~small stones (slightly limited)	0.08	~slippage potential (moderately limited)	0.50
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
77008: Hassler-----	Not limited		Slightly limited ~slope (slightly limited)	0.30	Moderately limited ~low strength (moderately limited)	0.50	Slightly limited ~seasonal wetness (slightly limited)	0.17	Moderately limited ~slippage potential (moderately limited)	0.50
			~surface stones (slightly limited)	0.02	~seasonal wetness (slightly limited)	0.17			~low strength (moderately limited)	0.50
									~slope (moderately limited)	0.30
77009: Trackler-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Slightly limited ~seasonal wetness (slightly limited)	0.16	Moderately limited ~slippage potential (moderately limited)	0.50
					~seasonal wetness (slightly limited)	0.16			~low strength (moderately limited)	0.50
									~seasonal wetness (slightly limited)	0.16
77010: Trackler-----	Not limited		Moderately limited ~slope (moderately limited)	0.43	Moderately limited ~low strength (moderately limited)	0.50	Slightly limited ~seasonal wetness (slightly limited)	0.16	Limited ~slope (limited)	0.68
					~seasonal wetness (slightly limited)	0.16			~slippage potential (moderately limited)	0.50
									~low strength (moderately limited)	0.50
Irondale-----	Limited ~surface stones (limited)	0.91	Very limited ~surface stones >15% (very limited)	1.00	Very limited ~large surface stones (very limited)	1.00	Very limited ~large surface stones (very limited)	1.00	Very limited ~large surface stones (very limited)	1.00
	~small stones (limited)	0.68	~small stones (limited)	0.68	~low strength (moderately limited)	0.50	~small stones (limited)	0.68	~surface stones (limited)	0.91
			~slope (moderately limited)	0.43					~slope (limited)	0.68

Table 8a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78250: Skrainka-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50  0.50
78251: Skrainka-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76  0.50 0.50
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99006: Psammets-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99008: Udorhents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Dumps-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forest 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 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055:										
Alred-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.49	Not limited		Very limited ~slope (very limited) ~slippage potential (limited)	1.00 0.90	Not limited	
Rueter-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.49	Not limited		Very limited ~slope (very limited) ~slippage potential (limited)	1.00 0.90	Not limited	
73139:										
Poynor-----	Limited ~slope/erodibility (limited)	0.75	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50	Not limited	
Clarksville----	Limited ~slope/erodibility (limited)	0.75	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50	Not limited	
Scholten-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited) ~seasonal wetness (moderately limited)	0.80 0.43	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50	Slightly limited ~seasonal wetness (slightly limited) ~soil reaction (slightly limited)	0.26 0.12

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73140: Clarksville----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.59	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~slippage potential (limited) ~low strength (moderately limited)	1.00 0.90 0.50	Slightly limited ~soil reaction (slightly limited)	0.06
Scholten-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.49	Not limited		Very limited ~slope (very limited) ~slippage potential (limited)	1.00 0.90	Not limited	
73141: Firebaugh-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Slightly limited ~seasonal wetness (slightly limited)	0.23	Moderately limited ~slippage potential (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.23	Not limited	
73142: Firebaugh-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.23	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50	Not limited	
73143: Courtois-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited)	0.80	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50	Not limited	
73144: Courtois-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.27	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.68 0.50 0.50	Not limited	

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73145: Crider-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited)	0.80	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50	Not limited	
73146: Marquand-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.15	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.15	Not limited	
73147: Fourche-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.10	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.10	Not limited	
73148: Jonca-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.10	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.10	Not limited	
73149: Caneyville-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited)	0.80	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50	Not limited	
Bucklick-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited)	0.80	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50	Not limited	

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73150: Caneyville-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50	Not limited	
Bucklick-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50	Not limited	
73151: Caneyville-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.39	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~slippage potential (limited) ~low strength (moderately limited)	1.00 0.90 0.50	Not limited	
Gasconade-----	Limited ~slope/erodibility (limited)	0.77	Moderately limited ~slope/erodibility (moderately limited)	0.39	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~slippage potential (limited) ~low strength (moderately limited)	1.00 0.90 0.50	Limited ~droughty (limited)	0.92
Bucklick-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.39	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~slippage potential (limited) ~low strength (moderately limited)	1.00 0.90 0.50	Not limited	

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73152: Lily-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited)	0.80	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50	Not limited	
Ramsey-----	Moderately limited ~slope/erodibility (moderately limited)	0.38	Slightly limited ~slope/erodibility (slightly limited)	0.12	Moderately limited ~low strength (moderately limited)	0.50	Moderately limited ~slippage potential (moderately limited)	0.50	Not limited	
73153: Lily-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Moderately limited ~low strength (moderately limited)	0.50	Limited ~slope (limited) ~slippage potential (moderately limited)	0.76 0.50	Not limited	
Ramsey-----	Limited ~slope/erodibility (limited)	0.75	Slightly limited ~slope/erodibility (slightly limited)	0.24	Moderately limited ~low strength (moderately limited)	0.50	Limited ~slope (limited) ~slippage potential (moderately limited)	0.76 0.50	Not limited	
73154: Ramsey-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.33	Moderately limited ~low strength (moderately limited)	0.50	Very limited ~slope (very limited) ~slippage potential (moderately limited)	1.00 0.50	Not limited	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73155: Gasconade-----	Limited ~slope/erodibility (limited)	0.69	Moderately limited ~slope/erodibility (moderately limited)	0.35	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~slippage potential (limited) ~low strength (moderately limited)	1.00 0.90 0.50	Limited ~droughty (limited)	0.94
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73156: Alred-----	Limited ~slope/erodibility (limited)	0.75	Slightly limited ~slope/erodibility (slightly limited)	0.24	Not limited		Limited ~slippage potential (limited) ~slope (limited)	0.90 0.76	Not limited	
Gepp-----	Limited ~slope/erodibility (limited)	0.75	Slightly limited ~slope/erodibility (slightly limited)	0.24	Not limited		Limited ~slippage potential (limited) ~slope (limited)	0.90 0.76	Not limited	
73157: Captina-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.15	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.15	Not limited	
74644: Deible-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~seasonal wetness (limited) ~low strength (limited)	0.91 0.80	Limited ~seasonal wetness (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.91 0.50 0.50	Limited ~seasonal wetness (limited)	0.91
74645: Higdon-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.29	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.29	Not limited	

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74646: Cornwall-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.15	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.15	Not limited	
74647: Cornwall-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.15	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50	Not limited	
74648: Aslinger-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.20	Not limited	
74649: Aslinger-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.22	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.50 0.45	Not limited	
Waben-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.10	Limited ~low strength (limited)	0.80	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50	Slightly limited ~droughty (slightly limited)	0.00

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74650: Higdon-----	Slightly limited ~slope/erodibility (slightly limited)	0.17	Slightly limited ~slope/erodibility (slightly limited)	0.04	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80  0.29	Moderately limited ~flooding (moderately limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.60  0.50  0.50	Moderately limited ~flooding (moderately limited)	0.60
74684: Raccoon-----	Slightly limited ~slope/erodibility (slightly limited)	0.17	Slightly limited ~slope/erodibility (slightly limited)	0.04	Very limited ~seasonal wetness (very limited) ~low strength (limited)	1.00  0.80	Very limited ~seasonal wetness (very limited) ~low strength (moderately limited)	1.00  0.50	Very limited ~seasonal wetness (very limited)	1.00
75381: Bearthicket----	Slightly limited ~slope/erodibility (slightly limited)	0.17	Slightly limited ~slope/erodibility (slightly limited)	0.04	Limited ~low strength (limited)	0.80	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50  0.50	Not limited	
75395: Jamesfin-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60  0.50	Moderately limited ~flooding (moderately limited)	0.60
75408: Secesh-----	Slightly limited ~slope/erodibility (slightly limited)	0.17	Slightly limited ~slope/erodibility (slightly limited)	0.03	Limited ~low strength (limited)	0.80	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50  0.50	Not limited	
75409: Relfe-----	Slightly limited ~slope/erodibility (slightly limited)	0.12	Slightly limited ~slope/erodibility (slightly limited)	0.04	Moderately limited ~low strength (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited) ~droughty (moderately limited)	0.60  0.35

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75410: Relfe-----	Slightly limited ~slope/erodibility (slightly limited)	0.12	Slightly limited ~slope/erodibility (slightly limited)	0.04	Not limited		Very limited ~flooding (very limited)	1.00	Limited ~flooding (limited) ~droughty (limited)	0.90  0.82
75411: Tilk-----	Slightly limited ~slope/erodibility (slightly limited)	0.08	Slightly limited ~slope/erodibility (slightly limited)	0.04	Not limited		Moderately limited ~slippage potential (moderately limited)	0.50	Slightly limited ~droughty (slightly limited)	0.11
75416: Gladden-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited)	0.80	Moderately limited ~flooding (moderately limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.60 0.50 0.50	Moderately limited ~flooding (moderately limited)	0.60
77000: Killarney-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.59	Slightly limited ~seasonal wetness (slightly limited)	0.10	Very limited ~large surface stones (very limited) ~slope (very limited) ~surface stones (limited)	1.00 1.00 0.77	Not limited	
Frenchmill-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.59	Not limited		Very limited ~large surface stones (very limited) ~slope (very limited) ~surface stones (limited)	1.00 1.00 0.77	Not limited	
77001: Loughboro-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited) ~seasonal wetness (moderately limited)	0.80 0.45	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50 0.50 0.45	Moderately limited ~seasonal wetness (moderately limited) ~soil reaction (slightly limited)	0.30  0.06

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77002: Delassus-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.16	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.16		Not limited
77003: Delassus-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.16	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50		Not limited
77004: Irondale-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.49	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~large surface stones (moderately limited) ~slippage potential (moderately limited)	1.00 0.60 0.50		Not limited
77005: Hassler-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.31	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.17	Very limited ~slope (very limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	1.00 0.50 0.50		Not limited
Syenite-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.35	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	1.00 0.50 0.50		Not limited

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77006: Roselle-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited)	0.80	Limited ~slippage potential (limited) ~low strength (moderately limited)	0.90 0.50	Not limited	
77007: Taumsauk-----	Limited ~slope/erodibility (limited)	0.96	Moderately limited ~slope/erodibility (moderately limited)	0.49	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~large surface stones (moderately limited) ~slippage potential (moderately limited)	1.00 0.60 0.50	Not limited	
Irondale-----	Limited ~slope/erodibility (limited)	0.96	Moderately limited ~slope/erodibility (moderately limited)	0.49	Not limited		Very limited ~slope (very limited) ~large surface stones (moderately limited) ~slippage potential (moderately limited)	1.00 0.60 0.50	Not limited	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
77008: Hassler-----	Moderately limited ~slope/erodibility (moderately limited)	0.50	Slightly limited ~slope/erodibility (slightly limited)	0.16	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.17	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.50 0.30	Not limited	
77009: Trackler-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.16	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.50 0.16	Not limited	

Table 8b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77010: Trackler-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.27	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.16	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.68 0.50 0.50	Not limited	
Irondale-----	Moderately limited ~slope/erodibility (moderately limited)	0.42	Slightly limited ~slope/erodibility (slightly limited)	0.22	Limited ~low strength (limited)	0.80	Very limited ~large surface stones (very limited) ~surface stones (limited) ~slope (limited)	1.00 0.91 0.68	Not limited	
78250: Skrainka-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited)	0.80	Moderately limited ~slippage potential (moderately limited) ~low strength (moderately limited)	0.50 0.50	Not limited	
78251: Skrainka-----	Limited ~slope/erodibility (limited)	0.75	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.76 0.50 0.50	Not limited	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99006: Psamments-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99008: Udorthents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Dumps-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 9.--Windbreaks and Environmental Plantings

(Only the soils suitable for windbreaks and environmental plantings are listed. Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73055: Alred-----	common lilac; fragrant sumac	American plum; gray dogwood	Austrian pine; bur oak; common hackberry; eastern redcedar; green ash	---	---
Rueter-----	common lilac; fragrant sumac	American plum; gray dogwood	Austrian pine; bur oak; common hackberry; eastern redcedar; green ash; honeylocust	shortleaf pine	---
73139: Poynor-----	fragrant sumac; ninebark; St. Johnswort	eastern redcedar; possumhaw; roughleaf dogwood; Washington hawthorn	arborvitae; bur oak; green hawthorn; post oak	Austrian pine; green ash; hackberry; honeylocust; pin oak	---
Clarksville---	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
Scholten-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
73140: Clarksville---	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
Scholten-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
73141, 73142: Firebaugh-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
73143, 73144: Courtois-----	American hazelnut; fragrant sumac; southern arrowwood	American plum; blue spruce; eastern hophornbeam; eastern redbud; eastern redcedar; roughleaf dogwood	arborvitae; common serviceberry; sugar maple	northern red oak; tuliptree; white ash; white oak	eastern white pine

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73145: Crider-----	American hazelnut; fragrant sumac; southern arrowwood	American plum; blue spruce; eastern hophornbeam; eastern redbud; eastern redcedar; roughleaf dogwood	arborvitae; common serviceberry; sugar maple	northern red oak; tuliptree; white ash; white oak	eastern white pine
73146: Marquand-----	American hazelnut; fragrant sumac; southern arrowwood	American plum; blue spruce; eastern hophornbeam; eastern redbud; eastern redcedar; roughleaf dogwood	arborvitae; common serviceberry; sugar maple	northern red oak; tuliptree; white ash; white oak	eastern white pine
73147: Fourche-----	American hazelnut; fragrant sumac; southern arrowwood	American plum; blue spruce; eastern hophornbeam; eastern redbud; eastern redcedar; roughleaf dogwood	arborvitae; common serviceberry; sugar maple	northern red oak; tuliptree; white ash; white oak	eastern white pine
73148: Jonca-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
73149, 73150: Caneyville----	fragrant sumac; ninebark; St. Johnswort	eastern redcedar; possumhaw; roughleaf dogwood; Washington hawthorn	arborvitae; bur oak; green hawthorn; post oak	Austrian pine; green ash; hackberry; honeylocust; pin oak	---
Bucklick-----	American hazelnut; fragrant sumac; southern arrowwood	American plum; blue spruce; eastern hophornbeam; eastern redbud; eastern redcedar; roughleaf dogwood	arborvitae; common serviceberry; sugar maple	northern red oak; tuliptree; white ash; white oak	eastern white pine
73151: Caneyville----	fragrant sumac; ninebark; St. Johnswort	eastern redcedar; possumhaw; roughleaf dogwood; Washington hawthorn	arborvitae; bur oak; green hawthorn; post oak	Austrian pine; green ash; hackberry; honeylocust; pin oak	---
Gasconade.					
Bucklick-----	American hazelnut; fragrant sumac	American plum; blue spruce; eastern hophornbeam; eastern redbud; eastern redcedar; roughleaf dogwood	arborvitae; common serviceberry; sugar maple; white oak	northern red oak; tuliptree; white ash	eastern white pine

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73152, 73153: Lily-----	American hazelnut; coralberry; flameleaf sumac	American plum; blue spruce; eastern redcedar; gray dogwood; Washington hawthorn	common serviceberry; persimmon; post oak; shingle oak	Austrian pine; black oak	---
Ramsey.					
73156: Alred-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
Gepp-----	fragrant sumac; ninebark; St. Johnswort	eastern redcedar; possumhaw; roughleaf dogwood; Washington hawthorn	arborvitae; bur oak; green hawthorn; post oak	Austrian pine; green ash; hackberry; honeylocust; pin oak	---
73157: Captina-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
74644: Deible-----	fragrant sumac; American plum	blackhaw; gray dogwood	nannyberry; Washington hawthorn; eastern redcedar	sweetgum; green ash; baldcypress	pin oak; eastern white pine
74645: Higdon-----	American hazelnut; common ninebark; wild hydrangea	American plum; blue spruce; possumhaw; roughleaf dogwood	arborvitae; bur oak; green hawthorn; shingle oak	Austrian pine; baldcypress; hackberry; pin oak; red maple	American sycamore; eastern cottonwood; eastern white pine
74646, 74647: Cornwall-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
74648: Aslinger-----	coralberry; fragrant sumac; ninebark	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
74649: Aslinger-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
74649: Waben-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
74650: Higdon-----	American plum; fragrant sumac	blackhaw; gray dogwood	eastern redcedar; nannyberry; Washington hawthorn	baldcypress; green ash; sweetgum	eastern white pine; pin oak
74684: Raccoon-----	common buttonbush; common ninebark	possumhaw; sandbar willow	black willow; bur oak; green hawthorn	baldcypress; green ash; pecan; red maple; swamp white oak; sweetgum	eastern cottonwood; silver maple
75381: Bearthicket---	American hazelnut; common ninebark; wild hydrangea	American plum; blue spruce; possumhaw; roughleaf dogwood	arborvitae; bur oak; green hawthorn; shingle oak	Austrian pine; baldcypress; hackberry; pin oak; red maple	American sycamore; eastern cottonwood; eastern white pine
75395: Jamesfin-----	American plum; fragrant sumac	blackhaw; gray dogwood	eastern redcedar; nannyberry; Washington hawthorn	baldcypress; green ash; sweetgum	eastern white pine; pin oak
75408: Secesh-----	coralberry; fragrant sumac; ninebark	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
75409, 75410: Relfe-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
75411: Tilk-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
75416: Gladden-----	American hazelnut; common ninebark; wild hydrangea	American plum; blue spruce; possumhaw; roughleaf dogwood	arborvitae; bur oak; green hawthorn; shingle oak	Austrian pine; baldcypress; hackberry; pin oak; red maple	American sycamore; eastern cottonwood; eastern white pine
77000: Killarney-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
77000: Frenchmill----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
77001: Loughboro-----	fragrant sumac; ninebark; St. Johnswort	eastern redcedar; possumhaw; roughleaf dogwood; Washington hawthorn	arborvitae; bur oak; green hawthorn; post oak	Austrian pine; green ash; hackberry; honeylocust; pin oak	---
77002, 77003: Delassus-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
77004: Irondale-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
77005: Hassler-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
Syenite-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
77007: Taumsauk.					
Irondale-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
Rock outcrop.					
77008: Hassler-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
77009: Trackler-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
77010: Trackler-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
Irondale-----	common ninebark; coralberry; fragrant sumac	eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	common serviceberry; persimmon; post oak; red pine; shingle oak; shortleaf pine	black oak; mockernut hickory; northern red oak; white ash	---
78250, 78251: Skrainka-----	American hazelnut; fragrant sumac; southern arrowwood	American plum; blue spruce; eastern hophornbeam; eastern redbud; eastern redcedar; roughleaf dogwood	arborvitae; common serviceberry; sugar maple	northern red oak; tuliptree; white ash; white oak	eastern white pine

Table 10.--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 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055:								
Alred-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.92
	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79	~small stones (limited)	0.80	~large surface stones (limited)	0.79
	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40		
Rueter-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~small stones (very limited)	1.00	Limited ~slope (limited)	0.92
	~small stones (very limited)	1.00	~small stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (limited)	0.79
	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79	~too acid (limited)	0.71	~small stones (moderately limited)	0.49
73139:								
Poynor-----	Limited ~small stones (limited)	0.69	Limited ~small stones (limited)	0.69	Very limited ~slope (very limited)	1.00	Slightly limited ~large surface stones (slightly limited)	0.17
	~slope (limited)	0.63	~slope (limited)	0.63	~small stones (very limited)	1.00		
	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~large stones (slightly limited)	0.06		
Clarksville----	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63	Very limited ~slope (very limited)	1.00	Slightly limited ~large surface stones (slightly limited)	0.17
	~small stones (moderately limited)	0.31	~small stones (moderately limited)	0.31	~small stones (very limited)	1.00		
	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17				
Scholten-----	Very limited ~wetness (very limited)	1.00	Very limited ~percs slowly (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Limited ~wetness (limited)	0.78
	~percs slowly (very limited)	1.00	~wetness (limited)	0.78	~slope (very limited)	1.00	~large surface stones (slightly limited)	0.17
	~slope (limited)	0.63	~slope (limited)	0.63	~percs slowly (very limited)	1.00		

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73140: Clarksville-----	Very limited ~slope (very limited) ~small stones (limited) ~large surface stones (limited)	1.00 0.82 0.70	Very limited ~slope (very limited) ~small stones (limited) ~large surface stones (limited)	1.00 0.82 0.70	Very limited ~slope (very limited) ~small stones (very limited) ~too acid (moderately limited)	1.00 1.00 0.44	Very limited ~slope (very limited) ~large surface stones (limited)	1.00 0.70
Scholten-----	Very limited ~slope (very limited) ~percs slowly (very limited) ~small stones (very limited)	1.00 1.00 1.00 1.00	Very limited ~slope (very limited) ~percs slowly (very limited) ~small stones (very limited)	1.00 1.00 1.00 1.00	Very limited ~small stones (very limited) ~slope (very limited) ~percs slowly (very limited)	1.00 1.00 1.00 1.00	Limited ~slope (limited) ~small stones (limited) ~large surface stones (limited)	0.92 0.80 0.70
73141: Firebaugh-----	Limited ~wetness (limited) ~percs slowly (moderately limited) ~too acid (slightly limited)	0.65 0.39 0.12	Moderately limited ~percs slowly (moderately limited) ~wetness (moderately limited) ~too acid (slightly limited)	0.39 0.39 0.12	Limited ~slope (limited) ~wetness (limited) ~percs slowly (moderately limited)	0.98 0.65 0.39	Moderately limited ~wetness (moderately limited)	0.39
73142: Firebaugh-----	Limited ~wetness (limited) ~slope (limited) ~percs slowly (moderately limited)	0.65 0.63 0.39	Limited ~slope (limited) ~percs slowly (moderately limited) ~wetness (moderately limited)	0.63 0.39 0.39	Very limited ~slope (very limited) ~wetness (limited) ~small stones (moderately limited)	1.00 0.65 0.48	Very limited ~erodes easily (very limited) ~wetness (moderately limited)	1.00 0.39
73143: Courtois-----	Not limited		Not limited		Limited ~small stones (limited) ~slope (limited)	0.92 0.78	Not limited	
73144: Courtois-----	Moderately limited ~slope (moderately limited)	0.37	Moderately limited ~slope (moderately limited)	0.37	Very limited ~slope (very limited) ~small stones (limited)	1.00 0.68	Very limited ~erodes easily (very limited)	1.00

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73145: Crider-----	Not limited		Not limited		Limited ~slope (limited)	0.78	Not limited	
73146: Marquand-----	Moderately limited ~wetness (moderately limited) ~percs slowly (slightly limited)	0.37  0.13	Slightly limited ~wetness (slightly limited) ~percs slowly (slightly limited)	0.15  0.13	Limited ~slope (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.98  0.37  0.13	Slightly limited ~wetness (slightly limited)	0.15
73147: Fourche-----	Slightly limited ~percs slowly (slightly limited)	0.13	Slightly limited ~percs slowly (slightly limited)	0.13	Limited ~slope (limited) ~percs slowly (slightly limited)	0.78  0.13	Not limited	
73148: Jonca-----	Moderately limited ~percs slowly (moderately limited) ~too acid (slightly limited)	0.57  0.24	Moderately limited ~percs slowly (moderately limited) ~too acid (slightly limited)	0.57  0.24	Limited ~slope (limited) ~percs slowly (moderately limited) ~too acid (slightly limited)	0.98  0.57  0.24	Not limited	
73149: Caneyville-----	Slightly limited ~percs slowly (slightly limited)	0.13	Slightly limited ~percs slowly (slightly limited)	0.13	Limited ~slope (limited) ~small stones (moderately limited) ~depth to bedrock (slightly limited)	0.98  0.30  0.30	Not limited	
Bucklick-----	Not limited		Not limited		Limited ~slope (limited)	0.98	Not limited	

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73150:								
Caneyville-----	Limited ~slope (limited) ~percs slowly (slightly limited)	0.63  0.13	Limited ~slope (limited) ~percs slowly (slightly limited)	0.63  0.13	Very limited ~slope (very limited) ~small stones (moderately limited) ~depth to bedrock (slightly limited)	1.00  0.30 0.30	Not limited	
Bucklick-----	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63	Very limited ~slope (very limited)	1.00	Not limited	
73151:								
Caneyville-----	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00  0.13	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00  0.13	Very limited ~slope (very limited) ~small stones (moderately limited) ~depth to bedrock (slightly limited)	1.00  0.30 0.28	Moderately limited ~slope (moderately limited)	0.50
Gasconade-----	Very limited ~too clayey (very limited) ~slope (very limited) ~shallow to bedrock (limited)	1.00  1.00  0.90	Very limited ~too clayey (very limited) ~slope (very limited) ~shallow to bedrock (limited)	1.00  1.00  0.90	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~too clayey (very limited)	1.00  1.00  1.00	Very limited ~too clayey (very limited) ~slope (moderately limited) ~large stones (moderately limited)	1.00  0.50  0.42
Bucklick-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Moderately limited ~slope (moderately limited)	0.50
73152:								
Lily-----	Not limited		Not limited		Limited ~slope (limited) ~depth to bedrock (moderately limited)	0.98  0.60	Not limited	
Ramsey-----	Limited ~shallow to bedrock (limited) ~too acid (slightly limited)	0.90  0.18	Limited ~shallow to bedrock (limited) ~too acid (slightly limited)	0.90  0.18	Very limited ~shallow to bedrock (very limited) ~slope (limited) ~too acid (slightly limited)	1.00  0.98 0.18	Not limited	

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73153:								
Lily-----	Limited ~slope (limited) ~too acid (slightly limited)	0.63 0.06	Limited ~slope (limited) ~too acid (slightly limited)	0.63 0.06	Very limited ~slope (very limited) ~depth to bedrock (moderately limited) ~small stones (slightly limited)	1.00 0.60 0.18	Not limited	
Ramsey-----	Limited ~shallow to bedrock (limited) ~slope (limited) ~too acid (slightly limited)	0.90 0.63 0.18	Limited ~shallow to bedrock (limited) ~slope (limited) ~too acid (slightly limited)	0.90 0.63 0.18	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~too acid (slightly limited)	1.00 1.00 0.18	Not limited	
73154:								
Ramsey-----	Very limited ~slope (very limited) ~shallow to bedrock (limited) ~too acid (slightly limited)	1.00 0.90 0.18	Very limited ~slope (very limited) ~shallow to bedrock (limited) ~too acid (slightly limited)	1.00 0.90 0.18	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~too acid (slightly limited)	1.00 1.00 0.18	Slightly limited ~slope (slightly limited)	0.25
Rock outcrop---	Not rated		Not rated		Not rated		Not rated	
73155:								
Gasconade-----	Very limited ~too clayey (very limited) ~slope (very limited) ~shallow to bedrock (limited)	1.00 1.00 0.90	Very limited ~too clayey (very limited) ~slope (very limited) ~shallow to bedrock (limited)	1.00 1.00 0.90	Very limited ~shallow to bedrock (very limited) ~too clayey (very limited) ~slope (very limited)	1.00 1.00 1.00	Very limited ~too clayey (very limited) ~slope (moderately limited)	1.00 0.33
Rock outcrop---	Not rated		Not rated		Not rated		Not rated	
73156:								
Alred-----	Limited ~slope (limited) ~percs slowly (moderately limited) ~large surface stones (slightly limited)	0.63 0.39 0.17	Limited ~slope (limited) ~percs slowly (moderately limited) ~large surface stones (slightly limited)	0.63 0.39 0.17	Very limited ~slope (very limited) ~percs slowly (moderately limited) ~small stones (moderately limited)	1.00 0.39 0.36	Slightly limited ~large surface stones (slightly limited)	0.17

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73156: Gepp-----	Very limited ~small stones (very limited)	1.00	Very limited ~small stones (very limited)	1.00	Very limited ~small stones (very limited)	1.00	Slightly limited ~large surface stones (slightly limited)	0.17
	~slope (limited)	0.63	~slope (limited)	0.63	~slope (very limited)	1.00	~small stones (slightly limited)	0.12
	~too acid (slightly limited)	0.30	~too acid (slightly limited)	0.30	~too acid (slightly limited)	0.30		
73157: Captina-----	Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~percs slowly (moderately limited)	0.39	Limited ~slope (limited)	0.98	Slightly limited ~wetness (slightly limited)	0.13
	~wetness (moderately limited)	0.35	~wetness (slightly limited)	0.13	~percs slowly (moderately limited)	0.39		
					~wetness (moderately limited)	0.35		
74644: Deible-----	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
	~percs slowly (very limited)	1.00	~percs slowly (very limited)	1.00	~percs slowly (very limited)	1.00		
74645: Higdon-----	Limited ~wetness (limited)	0.96	Limited ~wetness (limited)	0.60	Limited ~wetness (limited)	0.96	Limited ~wetness (limited)	0.60
	~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13		
74646: Cornwall-----	Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~percs slowly (moderately limited)	0.39	Limited ~slope (limited)	0.98	Slightly limited ~wetness (slightly limited)	0.13
	~wetness (moderately limited)	0.35	~wetness (slightly limited)	0.13	~percs slowly (moderately limited)	0.39		
					~wetness (moderately limited)	0.35		

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74647: Cornwall-----	Limited ~slope (limited) ~percs slowly (moderately limited) ~wetness (moderately limited)	0.63 0.39 0.35	Limited ~slope (limited) ~percs slowly (moderately limited) ~wetness (slightly limited)	0.63 0.39 0.13	Very limited ~slope (very limited) ~percs slowly (moderately limited) ~wetness (moderately limited)	1.00 0.39 0.35	Very limited ~erodes easily (very limited) ~wetness (slightly limited)	1.00 0.13
74648: Aslinger-----	Moderately limited ~wetness (moderately limited) ~percs slowly (slightly limited)	0.50 0.26	Slightly limited ~wetness (slightly limited) ~percs slowly (slightly limited)	0.28 0.26	Moderately limited ~wetness (moderately limited) ~slope (moderately limited) ~small stones (moderately limited)	0.50 0.40 0.30	Slightly limited ~wetness (slightly limited)	0.28
74649: Aslinger-----	Moderately limited ~wetness (moderately limited) ~too acid (slightly limited) ~percs slowly (slightly limited)	0.50 0.30 0.13	Slightly limited ~too acid (slightly limited) ~wetness (slightly limited) ~percs slowly (slightly limited)	0.30 0.28 0.13	Very limited ~slope (very limited) ~wetness (moderately limited) ~too acid (slightly limited)	1.00 0.50 0.30	Very limited ~erodes easily (very limited) ~wetness (slightly limited)	1.00 0.28
Waben-----	Not limited		Not limited		Limited ~small stones (limited) ~slope (limited) ~large stones (slightly limited)	0.84 0.78 0.18	Not limited	
74650: Higdon-----	Very limited ~flooding (very limited) ~wetness (limited) ~percs slowly (slightly limited)	1.00 0.75 0.15	Moderately limited ~wetness (moderately limited) ~percs slowly (slightly limited) ~too acid (slightly limited)	0.45 0.15 0.06	Limited ~wetness (limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	0.75 0.60 0.15	Moderately limited ~wetness (moderately limited)	0.45

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74684: Racoon-----	Very limited ~wetness (very limited) ~flooding (rare) (limited) ~percs slowly (slightly limited)	1.00  0.90  0.13	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00  0.13	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	1.00  0.13	Very limited ~wetness (very limited)	1.00
75381: Bearthicket----	Limited ~flooding (rare) (limited)	0.90	Not limited		Not limited		Not limited	
75395: Jamesfin-----	Very limited ~flooding (very limited)	1.00	Not limited		Moderately limited ~flooding (moderately limited)	0.60	Not limited	
75408: Secesh-----	Limited ~flooding (rare) (limited)	0.90	Not limited		Slightly limited ~large stones (slightly limited)	0.01	Not limited	
75409: Relfe-----	Very limited ~flooding (very limited)	1.00	Not limited		Limited ~small stones (limited) ~flooding (moderately limited)	0.84  0.60	Not limited	
75410: Relfe-----	Very limited ~flooding (very limited) ~small stones (slightly limited)	1.00  0.21	Moderately limited ~flooding (moderately limited) ~small stones (slightly limited)	0.60  0.21	Very limited ~flooding (very limited) ~small stones (very limited)	1.00  1.00	Moderately limited ~flooding (moderately limited)	0.60
75411: Tilk-----	Very limited ~small stones (very limited) ~flooding (rare) (limited)	1.00  0.90	Very limited ~small stones (very limited)	1.00	Very limited ~small stones (very limited) ~large stones (slightly limited)	1.00  0.30	Limited ~small stones (limited)	0.78

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75416: Gladden-----	Very limited ~flooding (very limited)	1.00	Not limited		Moderately limited ~flooding (moderately limited)	0.60	Not limited	
77000: Killarney-----	Very limited ~slope (very limited) ~large surface stones (very limited) ~percs slowly (very limited)	1.00 1.00 1.00	Very limited ~large surface stones (very limited) ~slope (very limited) ~percs slowly (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~percs slowly (very limited) ~small stones (very limited)	1.00 1.00 1.00	Very limited ~large surface stones (very limited) ~slope (very limited)	1.00 1.00
Frenchmill-----	Very limited ~slope (very limited) ~large surface stones (very limited) ~small stones (moderately limited)	1.00 1.00 0.43	Very limited ~large surface stones (very limited) ~slope (very limited) ~small stones (moderately limited)	1.00 1.00 0.43	Very limited ~slope (very limited) ~large stones >25% (very limited) ~small stones (very limited)	1.00 1.00 1.00	Very limited ~large surface stones (very limited) ~slope (very limited) ~large stones (slightly limited)	1.00 1.00 0.06
77001: Loughboro-----	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00 0.39	Limited ~wetness (limited) ~percs slowly (moderately limited)	0.81 0.39	Very limited ~wetness (very limited) ~percs slowly (moderately limited)	1.00 0.39	Limited ~wetness (limited)	0.81
77002: Delassus-----	Very limited ~percs slowly (very limited) ~wetness (moderately limited)	1.00 0.41	Very limited ~percs slowly (very limited) ~wetness (slightly limited)	1.00 0.19	Very limited ~percs slowly (very limited) ~slope (limited) ~wetness (moderately limited)	1.00 0.98 0.41	Slightly limited ~wetness (slightly limited)	0.19
77003: Delassus-----	Very limited ~percs slowly (very limited) ~large surface stones (limited) ~slope (limited)	1.00 0.70 0.63	Very limited ~percs slowly (very limited) ~large surface stones (limited) ~slope (limited)	1.00 0.70 0.63	Very limited ~slope (very limited) ~percs slowly (very limited) ~large stones >25% (very limited)	1.00 1.00 1.00	Limited ~large surface stones (limited) ~large stones (moderately limited) ~wetness (slightly limited)	0.70 0.38 0.19

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77004: Iroindale-----	Very limited ~slope (very limited) ~large surface stones (very limited) ~small stones (limited)	1.00 1.00 0.91	Very limited ~slope (very limited) ~large surface stones (very limited) ~small stones (limited)	1.00 1.00 0.91	Very limited ~slope (very limited) ~small stones (very limited) ~depth to bedrock (limited)	1.00 1.00 0.86	Very limited ~large surface stones (very limited) ~slope (limited)	1.00 0.92
77005: Hassler-----	Very limited ~slope (very limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	1.00 0.43 0.17	Very limited ~slope (very limited) ~wetness (slightly limited) ~percs slowly (slightly limited)	1.00 0.21 0.17	Very limited ~slope (very limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	1.00 0.43 0.17	Slightly limited ~wetness (slightly limited) ~slope (slightly limited) ~large surface stones (slightly limited)	0.21 0.17 0.17
Syenite-----	Very limited ~slope (very limited) ~too acid (slightly limited) ~percs slowly (slightly limited)	1.00 0.18 0.17	Very limited ~slope (very limited) ~too acid (slightly limited) ~percs slowly (slightly limited)	1.00 0.18 0.17	Very limited ~slope (very limited) ~depth to bedrock (moderately limited) ~large stones (slightly limited)	1.00 0.35 0.18	Moderately limited ~slope (moderately limited) ~large surface stones (slightly limited)	0.33 0.17
77006: Roselle-----	Not limited		Not limited		Limited ~slope (limited)	0.98	Not limited	
77007: Taumsauk-----	Very limited ~slope (very limited) ~large surface stones (very limited) ~shallow to bedrock (limited)	1.00 1.00 0.90	Very limited ~slope (very limited) ~large surface stones (very limited) ~shallow to bedrock (limited)	1.00 1.00 0.90	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~small stones (very limited)	1.00 1.00 1.00	Very limited ~large surface stones (very limited) ~slope (limited)	1.00 0.92

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value						
77007:								
Irondale-----	Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~small stones	1.00	~slope	0.92
	(very limited)		(very limited)		(very limited)		(limited)	
	~small stones	1.00	~small stones	1.00	~depth to bedrock	0.86	~small stones	0.08
	(very limited)		(very limited)		(limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated	
77008:								
Hassler-----	Moderately limited		Slightly limited		Very limited		Slightly limited	
	~wetness	0.43	~wetness	0.21	~slope	1.00	~wetness	0.21
	(moderately limited)		(slightly limited)		(very limited)		(slightly limited)	
	~percs slowly	0.17	~percs slowly	0.17	~wetness	0.43	~large surface stones	0.17
	(slightly limited)		(slightly limited)		(moderately limited)		(slightly limited)	
	~large surface stones	0.17	~large surface stones	0.17	~percs slowly	0.17		
	(slightly limited)		(slightly limited)		(slightly limited)			
77009:								
Trackler-----	Moderately limited		Slightly limited		Limited		Slightly limited	
	~wetness	0.41	~wetness	0.19	~slope	0.98	~wetness	0.19
	(moderately limited)		(slightly limited)		(limited)		(slightly limited)	
	~percs slowly	0.13	~percs slowly	0.13	~wetness	0.41		
	(slightly limited)		(slightly limited)		(moderately limited)			
					~percs slowly	0.13		
					(slightly limited)			
77010:								
Trackler-----	Moderately limited		Moderately limited		Very limited		Very limited	
	~wetness	0.41	~slope	0.37	~slope	1.00	~erodes easily	1.00
	(moderately limited)		(moderately limited)		(very limited)		(very limited)	
	~slope	0.37	~wetness	0.19	~wetness	0.41	~wetness	0.19
	(moderately limited)		(slightly limited)		(moderately limited)		(slightly limited)	
	~percs slowly	0.13	~percs slowly	0.13	~percs slowly	0.13		
	(slightly limited)		(slightly limited)		(slightly limited)			
Irondale-----	Very limited		Very limited		Very limited		Very limited	
	~large surface stones	1.00	~large surface stones	1.00	~slope	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~small stones	1.00	~small stones	1.00	~small stones	1.00	~small stones	0.68
	(very limited)		(very limited)		(very limited)		(limited)	
	~slope	0.37	~slope	0.37	~depth to bedrock	0.86		
	(moderately limited)		(moderately limited)		(limited)			

Table 10.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78250: Skrainka-----	Slightly limited ~percs slowly (slightly limited)	0.17	Slightly limited ~percs slowly (slightly limited)	0.17	Limited ~slope (limited) ~percs slowly (slightly limited)	0.98  0.17	Not limited	
78251: Skrainka-----	Limited ~slope (limited) ~percs slowly (slightly limited)	0.63  0.18	Limited ~slope (limited) ~percs slowly (slightly limited)	0.63  0.18	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00  0.18	Not limited	
99001: Water-----	Not rated		Not rated		Not rated		Not rated	
99006: Psammets-----	Not rated		Not rated		Not rated		Not rated	
99008: Udorthents-----	Not rated		Not rated		Not rated		Not rated	
Dumps-----	Not rated		Not rated		Not rated		Not rated	

Table 11a.--Wildlife Habitat

(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 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055:										
Alred-----	Very limited ~droughty (very limited) ~high erodibility (limited) ~slope (moderately limited)	1.00  0.80  0.60	Limited ~high erodibility (limited) ~slope (moderately limited) ~percs slowly (moderately limited)	0.80  0.60  0.40	Slightly limited ~droughty (slightly limited)	0.03	Slightly limited ~droughty (slightly limited)	0.03	Slightly limited ~droughty (slightly limited)	0.03
Rueter-----	Very limited ~droughty (very limited) ~small stones (very limited) ~high erodibility (limited)	1.00  1.00  0.80	Very limited ~small stones (very limited) ~high erodibility (limited) ~slope (moderately limited)	1.00  0.80  0.60	Moderately limited ~small stones (moderately limited) ~droughty (moderately limited)	0.53  0.43	Moderately limited ~small stones (moderately limited) ~droughty (moderately limited)	0.49  0.43	Moderately limited ~droughty (moderately limited)	0.43
73139:										
Poynor-----	Limited ~droughty (limited) ~high erodibility (limited) ~small stones (limited)	0.99  0.80  0.69	Limited ~high erodibility (limited) ~small stones (limited)	0.80  0.69	Slightly limited ~small stones (slightly limited)	0.14	Not limited		Not limited	
Clarksville----	Very limited ~droughty (very limited) ~high erodibility (limited) ~small stones (moderately limited)	1.00  0.80  0.31	Limited ~high erodibility (limited) ~small stones (moderately limited) ~droughty (slightly limited)	0.80  0.31  0.00	Slightly limited ~small stones (slightly limited) ~droughty (slightly limited)	0.04  0.00	Slightly limited ~droughty (slightly limited)	0.00	Slightly limited ~droughty (slightly limited)	0.00
Scholten-----	Very limited ~droughty (very limited) ~percs slowly (very limited) ~high erodibility (limited)	1.00  1.00  0.80	Very limited ~percs slowly (very limited) ~high erodibility (limited) ~wetness (limited)	1.00  0.80  0.78	Limited ~wetness (limited) ~droughty (moderately limited) ~small stones (slightly limited)	0.78  0.56  0.06	Limited ~wetness (limited) ~droughty (moderately limited)	0.78  0.56	Very limited ~wetness (very limited) ~droughty (moderately limited)	1.00  0.56

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73140: Clarksville----	Limited ~droughty (limited)	0.95	Limited ~small stones (limited)	0.82	Slightly limited ~small stones (slightly limited)	0.17	Not limited		Not limited	
	~small stones (limited)	0.82	~high erodibility (limited)	0.80						
	~high erodibility (limited)	0.80	~slope (limited)	0.79						
Scholten-----	Very limited ~percs slowly (very limited)	1.00	Very limited ~percs slowly (very limited)	1.00	Limited ~small stones (limited)	0.80	Limited ~small stones (limited)	0.80	Moderately limited ~wetness (moderately limited)	0.39
	~droughty (very limited)	1.00	~small stones (very limited)	1.00	~wetness (slightly limited)	0.17	~wetness (slightly limited)	0.17	~droughty (slightly limited)	0.09
	~small stones (very limited)	1.00	~high erodibility (limited)	0.80	~droughty (slightly limited)	0.09	~droughty (slightly limited)	0.09		
73141, 73142: Firebaugh-----	Limited ~high erodibility (limited)	0.80	Limited ~high erodibility (limited)	0.80	Moderately limited ~wetness (moderately limited)	0.50	Moderately limited ~wetness (moderately limited)	0.50	Limited ~wetness (limited)	0.71
	~wetness (moderately limited)	0.50	~wetness (moderately limited)	0.50						
	~percs slowly (moderately limited)	0.39	~percs slowly (moderately limited)	0.39						
73143, 73144: Courtois-----	Limited ~high erodibility (limited)	0.80	Limited ~high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
	~droughty (slightly limited)	0.22								
73145: Crider-----	Limited ~high erodibility (limited)	0.80	Limited ~high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
73146: Marquand-----	Limited ~high erodibility (limited)	0.80	Limited ~high erodibility (limited)	0.80	Moderately limited ~wetness (moderately limited)	0.37	Moderately limited ~wetness (moderately limited)	0.37	Moderately limited ~wetness (moderately limited)	0.52
	~wetness (moderately limited)	0.37	~wetness (moderately limited)	0.37						
	~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13						

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73147: Fourche-----	Limited ~high erodibility (limited) ~wetness (slightly limited) ~percs slowly (slightly limited)	0.80  0.28  0.13	Limited ~high erodibility (limited) ~wetness (slightly limited) ~percs slowly (slightly limited)	0.80  0.28  0.13	Slightly limited ~wetness (slightly limited)	0.28	Slightly limited ~wetness (slightly limited)	0.28	Moderately limited ~wetness (moderately limited)	0.45
73148: Jonca-----	Limited ~high erodibility (limited) ~percs slowly (moderately limited) ~wetness (slightly limited)	0.80  0.57  0.28	Limited ~high erodibility (limited) ~percs slowly (moderately limited) ~wetness (slightly limited)	0.80  0.57  0.28	Slightly limited ~wetness (slightly limited)	0.28	Slightly limited ~wetness (slightly limited)	0.28	Moderately limited ~wetness (moderately limited)	0.45
73149: Caneyville-----	Limited ~droughty (limited) ~high erodibility (limited) ~depth to bedrock (slightly limited)	0.97  0.80  0.30	Limited ~high erodibility (limited) ~depth to bedrock (slightly limited) ~percs slowly (slightly limited)	0.80  0.30  0.13	Not limited		Slightly limited ~depth to bedrock (slightly limited)	0.30	Slightly limited ~depth to bedrock (slightly limited)	0.30
Bucklick-----	Limited ~high erodibility (limited) ~droughty (moderately limited)	0.80  0.31	Limited ~high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
73150: Caneyville-----	Limited ~high erodibility (limited) ~droughty (limited) ~depth to bedrock (slightly limited)	0.80  0.73  0.30	Limited ~high erodibility (limited) ~depth to bedrock (slightly limited) ~percs slowly (slightly limited)	0.80  0.30  0.13	Not limited		Slightly limited ~depth to bedrock (slightly limited)	0.30	Slightly limited ~depth to bedrock (slightly limited)	0.30

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73150: Bucklick-----	Limited ~droughty (limited) ~high erodibility (limited)	 0.94  0.80	Limited ~high erodibility (limited)	 0.80	Not limited		Not limited		Not limited	
73151: Caneyville-----	Limited ~droughty (limited) ~high erodibility (limited) ~slope (moderately limited)	 0.96  0.80  0.30	Limited ~high erodibility (limited) ~slope (moderately limited) ~depth to bedrock (slightly limited)	 0.80  0.30  0.28	Not limited		Slightly limited ~depth to bedrock (slightly limited)	0.28	Slightly limited ~depth to bedrock (slightly limited)	0.28
Gasconade-----	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~high erodibility (limited)	 1.00  1.00  0.80	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~high erodibility (limited)	 1.00  1.00  0.80	Very limited ~droughty (very limited) ~large stones (moderately limited) ~too clayey (moderately limited)	 1.00  0.42  0.36	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~large stones (moderately limited)	 1.00  1.00  0.42	Very limited ~shallow to bedrock (very limited) ~droughty (very limited) ~large stones (moderately limited)	 1.00  1.00  0.42
Bucklick-----	Limited ~high erodibility (limited) ~droughty (moderately limited) ~slope (moderately limited)	 0.80  0.36  0.30	Limited ~high erodibility (limited) ~slope (moderately limited)	 0.80  0.30	Not limited		Not limited		Not limited	
73152: Lily-----	Limited ~droughty (limited) ~high erodibility (limited) ~depth to bedrock (moderately limited)	 0.86  0.80  0.60	Limited ~high erodibility (limited) ~depth to bedrock (moderately limited)	 0.80  0.60	Not limited		Moderately limited ~depth to bedrock (moderately limited)	0.60	Moderately limited ~depth to bedrock (moderately limited)	0.60

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73152: Ramsey-----	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited ~shallow to bedrock (very limited) ~droughty (limited) ~high erodibility (limited)	1.00 0.98 0.80	Limited (limited)	0.98	Very limited ~shallow to bedrock (very limited) ~droughty (limited)	1.00 0.98	Very limited ~shallow to bedrock (very limited) ~droughty (limited)	1.00 0.98
73153: Lily-----	Limited ~droughty (limited) ~high erodibility (limited) ~depth to bedrock (moderately limited)	0.97 0.80 0.60	Limited ~high erodibility (limited) ~depth to bedrock (moderately limited)	0.80 0.60	Not limited		Moderately limited ~depth to bedrock (moderately limited)	0.60	Moderately limited ~depth to bedrock (moderately limited)	0.60
Ramsey-----	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited ~shallow to bedrock (very limited) (limited) ~high erodibility (limited)	1.00 0.98 0.80	Limited (limited)	0.98	Very limited ~shallow to bedrock (very limited) ~droughty (limited)	1.00 0.98	Very limited ~shallow to bedrock (very limited) ~droughty (limited)	1.00 0.98
73154: Ramsey-----	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited ~shallow to bedrock (very limited) ~droughty (limited) ~high erodibility (limited)	1.00 0.98 0.80	Limited (limited)	0.98	Very limited ~shallow to bedrock (very limited) ~droughty (limited)	1.00 0.98	Very limited ~shallow to bedrock (very limited) ~droughty (limited)	1.00 0.98
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73155: Gasconade-----	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited (very limited) ~too clayey (moderately limited)	1.00 0.36	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~too clayey (moderately limited)	1.00 1.00 0.36	Very limited ~shallow to bedrock (very limited) ~droughty (very limited)	1.00 1.00

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73155: Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73156: Alred-----	Limited ~droughty (very limited) ~high erodibility (limited) ~percs slowly (moderately limited)	1.00  0.80  0.39	Limited ~high erodibility (limited) ~percs slowly (moderately limited)	0.80  0.39	Not limited		Not limited		Not limited	
Gepp-----	Very limited ~droughty (very limited) ~small stones (very limited) ~high erodibility (limited)	1.00  1.00  0.80	Very limited ~small stones (very limited) ~high erodibility (limited) ~droughty (slightly limited)	1.00  0.80  0.01	Moderately limited ~small stones (moderately limited) ~droughty (slightly limited)	0.31  0.01	Slightly limited ~small stones (slightly limited) ~droughty (slightly limited)	0.12  0.01	Slightly limited ~droughty (slightly limited)	0.01
73157: Captina-----	Limited ~high erodibility (limited) ~percs slowly (moderately limited) ~wetness (moderately limited)	0.80  0.39  0.36	Limited ~high erodibility (limited) ~percs slowly (moderately limited) ~wetness (moderately limited)	0.80  0.39  0.36	Moderately limited ~wetness (moderately limited)	0.36	Moderately limited ~wetness (moderately limited)	0.36	Moderately limited ~wetness (moderately limited)	0.51
74644: Deible-----	Very limited ~wetness (very limited) ~percs slowly (very limited)	1.00  1.00	Very limited ~wetness (very limited) ~percs slowly (very limited)	1.00  1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
74645: Higdon-----	Moderately limited ~wetness (moderately limited) ~moderate erodibility (moderately limited) ~percs slowly (slightly limited)	0.60  0.50  0.13	Moderately limited ~wetness (moderately limited) ~moderate erodibility (moderately limited) ~percs slowly (slightly limited)	0.60  0.50  0.13	Moderately limited ~wetness (moderately limited)	0.60	Moderately limited ~wetness (moderately limited)	0.60	Limited ~wetness (limited)	0.99

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74646, 74647: Cornwall-----	Limited ~high erodibility (limited) ~percs slowly (moderately limited) ~wetness (moderately limited)	0.80 0.39 0.36	Limited ~high erodibility (limited) ~percs slowly (moderately limited) ~wetness (moderately limited)	0.80 0.39 0.36	Moderately limited ~wetness (moderately limited)	0.36	Moderately limited ~wetness (moderately limited)	0.36	Moderately limited ~wetness (moderately limited)	0.51
74648: Aslinger-----	Limited ~high erodibility (limited) ~droughty (moderately limited) ~wetness (moderately limited)	0.80 0.49 0.44	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.80 0.44 0.26	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.59
74649: Aslinger-----	Very limited ~droughty (very limited) ~high erodibility (limited) ~wetness (moderately limited)	1.00 0.80 0.44	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.80 0.44 0.13	Moderately limited ~wetness (moderately limited) ~droughty (slightly limited)	0.44 0.06	Moderately limited ~wetness (moderately limited) ~droughty (slightly limited)	0.44 0.06	Moderately limited ~wetness (moderately limited) ~droughty (slightly limited)	0.59 0.06
Waben-----	Very limited ~droughty (very limited) ~high erodibility (limited)	1.00 0.80	Limited ~high erodibility (limited) ~droughty (slightly limited)	0.80 0.00	Slightly limited ~droughty (slightly limited)	0.00	Slightly limited ~droughty (slightly limited)	0.00	Slightly limited ~droughty (slightly limited)	0.00
74650: Higdon-----	Moderately limited ~flooding (moderately limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.60 0.53 0.15	Moderately limited ~flooding (moderately limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.60 0.53 0.15	Moderately limited ~wetness (moderately limited)	0.53	Moderately limited ~wetness (moderately limited)	0.53	Limited ~wetness (limited)	0.79

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74684: Racoon-----	Very limited ~wetness (very limited) ~moderate erodibility (moderately limited) ~percs slowly (slightly limited)	1.00  0.50  0.13	Very limited ~wetness (very limited) ~moderate erodibility (moderately limited) ~percs slowly (slightly limited)	1.00  0.50  0.13	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
75381: Bearthicket----	Moderately limited ~moderate erodibility (moderately limited)	0.50	Moderately limited ~moderate erodibility (moderately limited)	0.50	Not limited		Not limited		Not limited	
75395: Jamesfin-----	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited)	0.60	Not limited		Not limited		Not limited	
75408: Secesh-----	Limited ~droughty (limited)	0.70	Not limited		Not limited		Not limited		Not limited	
75409: Relfe-----	Very limited ~droughty (very limited) ~flooding (moderately limited) ~moderate erodibility (moderately limited)	1.00  0.60  0.50	Limited ~droughty (limited) ~flooding (moderately limited) ~moderate erodibility (moderately limited)	0.84  0.60  0.50	Limited ~droughty (limited)	0.84	Limited ~droughty (limited)	0.84	Limited ~droughty (limited)	0.84
75410: Relfe-----	Very limited ~droughty (very limited) ~flooding (limited) ~moderate erodibility (moderately limited)	1.00  0.90  0.50	Limited ~droughty (limited) ~flooding (limited) ~moderate erodibility (moderately limited)	0.96  0.90  0.50	Limited ~droughty (limited) ~small stones (slightly limited)	0.96  0.02	Limited ~droughty (limited)	0.96	Limited ~droughty (limited)	0.96

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75411: Tilk-----	Very limited ~small stones (very limited) ~droughty (very limited) ~moderate erodibility (moderately limited)	1.00   1.00  0.50	Very limited ~small stones (very limited) ~moderate erodibility (moderately limited) ~droughty (slightly limited)	1.00   0.50  0.04	Limited ~small stones (limited) ~droughty (slightly limited)	0.77   0.04	Limited ~small stones (limited) ~droughty (slightly limited)	0.78   0.04	Slightly limited ~droughty (slightly limited)	0.04
75416: Gladden-----	Moderately limited ~flooding (moderately limited) ~moderate erodibility (moderately limited)	0.60   0.50	Moderately limited ~flooding (moderately limited) ~moderate erodibility (moderately limited)	0.60   0.50	Not limited		Not limited		Not limited	
77000: Killarney-----	Very limited ~percs slowly (very limited) ~droughty (limited) ~small stones (limited)	1.00   0.93  0.85	Very limited ~percs slowly (very limited) ~small stones (limited) ~high erodibility (limited)	1.00   0.85  0.80	Slightly limited ~wetness (slightly limited) ~small stones (slightly limited)	0.28   0.17	Slightly limited ~wetness (slightly limited)	0.28	Moderately limited ~wetness (moderately limited)	0.45
Frenchmill-----	Limited ~high erodibility (limited) ~slope (limited) ~droughty (limited)	0.80   0.79  0.71	Limited ~high erodibility (limited) ~slope (limited) ~small stones (moderately limited)	0.80   0.79  0.43	Slightly limited ~small stones (slightly limited) ~large stones (slightly limited)	0.07   0.06	Slightly limited ~large stones (slightly limited)	0.06	Slightly limited ~large stones (slightly limited)	0.06
77001: Loughboro-----	Limited ~wetness (limited) ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	0.81   0.50  0.39	Limited ~wetness (limited) ~moderate erodibility (moderately limited) ~percs slowly (moderately limited)	0.81   0.50  0.39	Limited ~wetness (limited)	0.81	Limited ~wetness (limited)	0.81	Very limited ~wetness (very limited)	1.00

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77002: Delassus-----	Very limited ~percs slowly (very limited) ~high erodibility (limited) ~wetness (moderately limited)	1.00 0.80 0.39	Very limited ~percs slowly (very limited) ~high erodibility (limited) ~wetness (moderately limited)	1.00 0.80 0.39	Moderately limited ~wetness (moderately limited)	0.39	Moderately limited ~wetness (moderately limited)	0.39	Moderately limited ~wetness (moderately limited)	0.54
77003: Delassus-----	Very limited ~percs slowly (very limited) ~high erodibility (limited) ~large stones (limited)	1.00 0.80 0.70	Very limited ~percs slowly (very limited) ~high erodibility (limited) ~large stones (limited)	1.00 0.80 0.70	Moderately limited ~wetness (moderately limited) ~large stones (moderately limited) ~small stones (slightly limited)	0.39 0.38 0.09	Moderately limited ~wetness (moderately limited) ~large stones (moderately limited)	0.39 0.38	Moderately limited ~wetness (moderately limited) ~large stones (moderately limited)	0.54 0.38
77004: Irondale-----	Very limited ~droughty (very limited) ~small stones (limited) ~depth to bedrock (limited)	1.00 0.91 0.86	Limited ~small stones (limited) ~depth to bedrock (limited) ~high erodibility (limited)	0.91 0.86 0.80	Limited ~droughty (limited) ~small stones (slightly limited)	0.75 0.19	Limited ~depth to bedrock (limited) ~droughty (limited)	0.86 0.75	Limited ~depth to bedrock (limited) ~droughty (limited)	0.86 0.75
77005: Hassler-----	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.80 0.40 0.17	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.80 0.40 0.17	Moderately limited ~wetness (moderately limited)	0.40	Moderately limited ~wetness (moderately limited)	0.40	Moderately limited ~wetness (moderately limited)	0.55
Syenite-----	Limited ~high erodibility (limited) ~droughty (moderately limited) ~depth to bedrock (moderately limited)	0.80 0.51 0.35	Limited ~high erodibility (limited) ~depth to bedrock (moderately limited) ~slope (slightly limited)	0.80 0.35 0.20	Not limited		Moderately limited ~depth to bedrock (moderately limited)	0.35	Moderately limited ~depth to bedrock (moderately limited)	0.35

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77006: Roselle-----	Limited ~high erodibility (limited)	0.80	Limited ~high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
77007: Taumsauk-----	Very limited ~droughty (very limited) ~shallow to bedrock (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited ~shallow to bedrock (very limited) ~droughty (very limited) ~high erodibility (limited)	1.00 1.00 0.80	Very limited ~droughty (very limited) ~small stones (slightly limited)	1.00 0.02	Very limited ~droughty (very limited) ~droughty (very limited)	1.00 1.00	Very limited ~shallow to bedrock (very limited) ~droughty (very limited)	1.00 1.00
Irondale-----	Very limited ~droughty (very limited) ~small stones (very limited) ~depth to bedrock (limited)	1.00 1.00 0.86	Very limited ~small stones (very limited) ~depth to bedrock (limited) ~droughty (limited)	1.00 0.86 0.83	Limited ~droughty (limited) ~small stones (slightly limited)	0.83 0.28	Limited ~depth to bedrock (limited) ~droughty (limited) ~small stones (slightly limited)	0.86 0.83 0.08	Limited ~depth to bedrock (limited) ~droughty (limited)	0.86 0.83
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
77008: Hassler-----	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.80 0.40 0.17	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.80 0.40 0.17	Moderately limited ~wetness (moderately limited)	0.40	Moderately limited ~wetness (moderately limited)	0.40	Moderately limited ~wetness (moderately limited)	0.55
77009: Trackler-----	Limited ~droughty (limited) ~high erodibility (limited) ~wetness (moderately limited)	0.89 0.80 0.39	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	0.80 0.39 0.13	Moderately limited ~wetness (moderately limited)	0.39	Moderately limited ~wetness (moderately limited)	0.39	Moderately limited ~wetness (moderately limited)	0.54

Table 11a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77010: Trackler-----	Limited ~droughty (limited) ~high erodibility (limited) ~wetness (moderately limited)	 0.94  0.80  0.39	Limited ~high erodibility (limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	 0.80  0.39  0.13	Moderately limited ~wetness (moderately limited)	 0.39	Moderately limited ~wetness (moderately limited)	 0.39	Moderately limited ~wetness (moderately limited)	 0.54
Irondale-----	Very limited ~droughty (very limited) ~small stones (very limited) ~depth to bedrock (limited)	 1.00  1.00  0.86	Very limited ~small stones (very limited) ~depth to bedrock (limited) ~high erodibility (limited)	 1.00  0.86  0.80	Limited ~small stones (limited) ~droughty (limited)	 0.68  0.66	Limited ~depth to bedrock (limited) ~small stones (limited) ~droughty (limited)	 0.86  0.68  0.66	Limited ~depth to bedrock (limited) ~droughty (limited)	 0.86  0.66
78250: Skrainka-----	Limited ~high erodibility (limited) ~percs slowly (slightly limited)	 0.80  0.17	Limited ~high erodibility (limited) ~percs slowly (slightly limited)	 0.80  0.17	Not limited		Not limited		Not limited	
78251: Skrainka-----	Limited ~high erodibility (limited) ~percs slowly (slightly limited)	 0.80  0.18	Limited ~high erodibility (limited) ~percs slowly (slightly limited)	 0.80  0.18	Not limited		Not limited		Not limited	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99006: Psammets-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99008: Udorhents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Dumps-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 11b.--Wildlife Habitat

(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 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055: Alred-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~small stones (slightly limited)	1.00 0.80 0.12	Slightly limited ~small stones (slightly limited)	0.12	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited)	1.00
Rueter-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~small stones (slightly limited)	1.00 0.80 0.08	Slightly limited ~small stones (slightly limited)	0.08	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
73139: Poynor-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
Clarksville----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
Scholten-----	Very limited ~wetness (very limited) ~droughty (moderately limited)	1.00 0.45	Limited ~infrequent flooding (limited) ~deep to water (slightly limited)	0.80 0.17	Moderately limited ~droughty (moderately limited)	0.45	Slightly limited ~deep to water (slightly limited) ~soil reaction (slightly limited)	0.17 0.12	Very limited ~slope (very limited) ~soil reaction (slightly limited)	1.00 0.12

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73140: Clarksville----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited) ~soil reaction (slightly limited)	1.00 0.06	Very limited ~slope (very limited) ~seepage (moderately limited) ~soil reaction (slightly limited)	1.00 0.45 0.06
Scholten-----	Moderately limited ~wetness (moderately limited) ~droughty (slightly limited)	0.39 0.05	Limited ~infrequent flooding (limited) ~small stones (limited) ~deep to water (limited)	0.80 0.80 0.77	Limited ~small stones (limited) ~droughty (slightly limited)	0.80 0.05	Limited ~deep to water (limited)	0.77	Very limited ~slope (very limited)	1.00
73141: Firebaugh-----	Limited ~wetness (limited)	0.71	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.40	Not limited		Moderately limited ~deep to water (moderately limited)	0.40	Limited ~slope (limited)	0.91
73142: Firebaugh-----	Limited ~wetness (limited)	0.71	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.40	Not limited		Moderately limited ~deep to water (moderately limited)	0.40	Very limited ~slope (very limited)	1.00
73143: Courtois-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~seepage (moderately limited)	0.66 0.45
73144: Courtois-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73145: Crider-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~seepage (moderately limited)	0.66 0.45
73146: Marquand-----	Moderately limited ~wetness (moderately limited)	0.52	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.52	Not limited		Moderately limited ~deep to water (moderately limited)	0.52	Limited ~slope (limited) ~seepage (slightly limited)	0.91 0.18
73147: Fourche-----	Moderately limited ~wetness (moderately limited)	0.45	Limited ~infrequent flooding (limited) ~deep to water (limited)	0.80 0.60	Not limited		Limited ~deep to water (limited)	0.60	Limited ~slope (limited) ~seepage (slightly limited)	0.66 0.18
73148: Jonca-----	Moderately limited ~wetness (moderately limited)	0.45	Limited ~infrequent flooding (limited) ~deep to water (limited)	0.80 0.60	Not limited		Limited ~deep to water (limited)	0.60	Limited ~slope (limited)	0.91
73149: Caneyville-----	Slightly limited ~depth to bedrock (slightly limited)	0.30	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited)	0.91
Bucklick-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~seepage (moderately limited)	0.91 0.45

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73150: Caneyville-----	Slightly limited ~depth to bedrock (slightly limited)	0.30	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.18
Bucklick-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
73151: Caneyville-----	Slightly limited ~depth to bedrock (slightly limited)	0.28	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.18
Gasconade-----	Very limited ~shallow to bedrock (very limited) ~droughty (very limited) ~large stones (moderately limited)	1.00 1.00 0.42	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~large stones (moderately limited)	1.00 0.80 0.42	Very limited ~droughty (very limited) ~large stones (moderately limited)	1.00 0.42	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.18
Bucklick-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
73152: Lily-----	Moderately limited ~depth to bedrock (moderately limited)	0.60	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~seepage (limited)	0.91 0.73

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73152: Ramsey-----	Very limited ~shallow to bedrock (very limited) ~droughty (limited)	1.00 0.95	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Limited ~droughty (limited)	0.95	Very limited ~deep to water (very limited)	1.00	Very limited ~seepage (very limited) ~slope (limited)	1.00 0.91
73153: Lily-----	Moderately limited ~depth to bedrock (moderately limited)	0.60	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (limited)	1.00 0.79
Ramsey-----	Very limited ~shallow to bedrock (very limited) ~droughty (limited)	1.00 0.95	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Limited ~droughty (limited)	0.95	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (very limited)	1.00 1.00
73154: Ramsey-----	Very limited ~shallow to bedrock (very limited) ~droughty (limited)	1.00 0.95	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Limited ~droughty (limited)	0.95	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (very limited)	1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73155: Gasconade-----	Very limited ~shallow to bedrock (very limited) ~droughty (very limited)	1.00 1.00	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~droughty (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73156: Alred-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited)	1.00

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73156: Gepp-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~small stones (slightly limited)	1.00 0.80 0.12	Slightly limited ~small stones (slightly limited)	0.12	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
73157: Captina-----	Moderately limited ~wetness (moderately limited)	0.51	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.53	Not limited		Moderately limited ~deep to water (moderately limited)	0.53	Limited ~slope (limited)	0.91
74644: Deible-----	Very limited ~wetness (very limited)	1.00	Not limited		Not limited		Not limited		Not limited	
74645: Higdon-----	Limited ~wetness (limited)	0.99	Limited ~infrequent flooding (limited) ~deep to water (slightly limited)	0.80 0.30	Not limited		Slightly limited ~deep to water (slightly limited)	0.30	Slightly limited ~seepage (slightly limited)	0.18
74646: Cornwall-----	Moderately limited ~wetness (moderately limited)	0.51	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.53	Not limited		Moderately limited ~deep to water (moderately limited)	0.53	Limited ~slope (limited)	0.91
74647: Cornwall-----	Moderately limited ~wetness (moderately limited)	0.51	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.53	Not limited		Moderately limited ~deep to water (moderately limited)	0.53	Very limited ~slope (very limited)	1.00

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74648: Aslinger-----	Moderately limited ~wetness (moderately limited) ~droughty (slightly limited)	0.59  0.00	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80  0.45	Slightly limited ~droughty (slightly limited)	0.00	Moderately limited ~deep to water (moderately limited)	0.45	Limited ~slope (limited) ~seepage (slightly limited)	0.91  0.18
74649: Aslinger-----	Moderately limited ~wetness (moderately limited) ~droughty (slightly limited)	0.59  0.06	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80  0.45	Slightly limited ~droughty (slightly limited)	0.06	Moderately limited ~deep to water (moderately limited)	0.45	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00  0.18
Waben-----	Slightly limited ~droughty (slightly limited)	0.00	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00  0.80	Slightly limited ~droughty (slightly limited)	0.00	Very limited ~deep to water (very limited)	1.00	Limited ~seepage (limited) ~slope (limited)	0.79  0.66
74650: Higdon-----	Limited ~wetness (limited)	0.99	Moderately limited ~infrequent flooding (moderately limited) ~deep to water (slightly limited)	0.50  0.30	Not limited		Slightly limited ~deep to water (slightly limited)	0.30	Slightly limited ~seepage (slightly limited)	0.18
74684: Raccoon-----	Very limited ~wetness (very limited)	1.00	Not limited		Not limited		Not limited		Slightly limited ~seepage (slightly limited)	0.18
75381: Bearthicket----	Not limited		Very limited ~deep to water (very limited)	1.00	Not limited		Very limited ~deep to water (very limited)	1.00	Moderately limited ~seepage (moderately limited)	0.45
75395: Jamesfin-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (moderately limited)	1.00  0.50	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~seepage (moderately limited)	1.00  0.45

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75408: Secesh-----	Not limited		Very limited ~deep to water (very limited)	1.00	Not limited		Very limited ~deep to water (very limited)	1.00	Moderately limited ~seepage (moderately limited)	0.45
75409: Relfe-----	Limited ~droughty (limited)	0.84	Very limited ~deep to water (very limited) ~infrequent flooding (moderately limited)	1.00 0.50	Limited ~droughty (limited)	0.84	Very limited ~deep to water (very limited)	1.00	Very limited ~seepage (very limited)	1.00
75410: Relfe-----	Limited ~droughty (limited)	0.96	Very limited ~deep to water (very limited)	1.00	Limited ~droughty (limited)	0.96	Very limited ~deep to water (very limited)	1.00	Very limited ~seepage (very limited)	1.00
75411: Tilk-----	Slightly limited ~droughty (slightly limited)	0.04	Very limited ~deep to water (very limited) ~small stones (limited)	1.00 0.78	Limited ~small stones (limited) ~droughty (slightly limited)	0.78 0.04	Very limited ~deep to water (very limited)	1.00	Limited ~seepage (limited)	0.79
75416: Gladden-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (moderately limited)	1.00 0.50	Not limited		Very limited ~deep to water (very limited)	1.00	Moderately limited ~seepage (moderately limited)	0.45
77000: Killarney-----	Moderately limited ~wetness (moderately limited)	0.45	Limited ~infrequent flooding (limited) ~deep to water (limited)	0.80 0.60	Not limited		Limited ~deep to water (limited)	0.60	Very limited ~slope (very limited)	1.00
Frenchmill-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77001: Loughboro-----	Very limited ~wetness (very limited)	1.00	Limited ~infrequent flooding (limited) ~deep to water (slightly limited)	0.80 0.15	Not limited		Slightly limited ~deep to water (slightly limited) ~soil reaction (slightly limited)	0.15 0.06	Slightly limited ~soil reaction (slightly limited)	0.06
77002: Delassus-----	Moderately limited ~wetness (moderately limited)	0.54	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.50	Not limited		Moderately limited ~deep to water (moderately limited)	0.50	Limited ~slope (limited)	0.91
77003: Delassus-----	Moderately limited ~wetness (moderately limited)	0.54	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.50	Not limited		Moderately limited ~deep to water (moderately limited)	0.50	Very limited ~slope (very limited)	1.00
77004: Irondale-----	Limited ~depth to bedrock (limited) ~droughty (limited)	0.86 0.66	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Limited ~droughty (limited)	0.66	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
77005: Hassler-----	Moderately limited ~wetness (moderately limited)	0.55	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.49	Not limited		Moderately limited ~deep to water (moderately limited)	0.49	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.15
Syenite-----	Moderately limited ~depth to bedrock (moderately limited)	0.35	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.15
77006: Roselle-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~seepage (moderately limited)	0.91 0.45

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77007:										
Taumsauk-----	Very limited ~shallow to bedrock (very limited) ~droughty (very limited)	1.00 1.00	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Limited ~droughty (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
Irondale-----	Limited ~depth to bedrock (limited) ~droughty (limited)	0.86 0.76	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~small stones (slightly limited)	1.00 0.80 0.08	Limited ~droughty (limited) ~small stones (slightly limited)	0.76 0.08	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.15
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
77008:										
Hassler-----	Moderately limited ~wetness (moderately limited)	0.55	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.49	Not limited		Moderately limited ~deep to water (moderately limited)	0.49	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.15
77009:										
Trackler-----	Moderately limited ~wetness (moderately limited)	0.54	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.50	Not limited		Moderately limited ~deep to water (moderately limited)	0.50	Limited ~slope (limited) ~seepage (slightly limited)	0.91 0.18
77010:										
Trackler-----	Moderately limited ~wetness (moderately limited)	0.54	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.50	Not limited		Moderately limited ~deep to water (moderately limited)	0.50	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.18
Irondale-----	Limited ~depth to bedrock (limited) ~droughty (moderately limited)	0.86 0.56	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~small stones (limited)	1.00 0.80 0.68	Limited ~small stones (limited) ~droughty (moderately limited)	0.68 0.56	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45

Table 11b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78250: Skrainka-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~seepage (slightly limited)	0.91 0.15
78251: Skrainka-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.14
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99006: Psamments-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99008: Udorthents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Dumps-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 12.--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 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055:										
Alred-----	Very limited ~shrink-swell (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~slope (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~shrink-swell (very limited)	1.00	~large stones (moderately limited)	0.30
							~low strength (very limited)	1.00	~droughty (slightly limited)	0.03
Rueter-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~large stones (slightly limited)	0.29	~large stones (slightly limited)	0.29	~large stones (slightly limited)	0.29	~large stones (slightly limited)	0.29	~small stones (very limited)	1.00
			~shrink-swell (slightly limited)	0.09					~too acid (limited)	0.84
73139:										
Poynor-----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Very limited ~slope (very limited)	1.00	Very limited ~low strength (very limited)	1.00	Limited ~small stones (limited)	0.69
	~shrink-swell (moderately limited)	0.45	~shrink-swell (slightly limited)	0.21	~shrink-swell (moderately limited)	0.45	~slope (limited)	0.63	~slope (limited)	0.63
							~shrink-swell (moderately limited)	0.45	~large stones (slightly limited)	0.07
Clarksville----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63
									~small stones (moderately limited)	0.31
									~too acid (slightly limited)	0.30
Scholten-----	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~wetness (limited)	0.78	Limited ~wetness (limited)	0.78
	~slope (limited)	0.76	~slope (limited)	0.76	~wetness (limited)	0.78	~slope (limited)	0.63	~too acid (limited)	0.76
									~slope (limited)	0.63

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73140: Clarksville----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~small stones (limited) ~too acid (limited)	1.00  0.82  0.68
Scholten-----	Very limited ~slope (very limited) ~wetness (moderately limited)	1.00  0.39	Very limited ~slope (very limited) ~wetness (limited)	1.00  0.99	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~small stones (very limited) ~too acid (moderately limited)	1.00  1.00  0.42
73141: Firebaugh-----	Limited ~wetness (limited)	0.71	Very limited ~wetness (very limited) ~shrink-swell (slightly limited)	1.00  0.00	Limited ~slope (limited) ~wetness (moderately limited)	0.68  0.39	Moderately limited ~wetness (moderately limited)	0.39	Moderately limited ~too acid (moderately limited) ~wetness (moderately limited)	0.42  0.39
73142: Firebaugh-----	Limited ~slope (limited) ~wetness (limited)	0.76  0.71	Very limited ~wetness (very limited) ~slope (limited)	1.00  0.76	Very limited ~slope (very limited) ~wetness (moderately limited)	1.00  0.39	Very limited ~low strength (very limited) ~slope (limited) ~wetness (moderately limited)	1.00  0.63  0.39	Limited ~slope (limited) ~too acid (limited) ~wetness (moderately limited)	0.63  0.60  0.39
73143: Courtois-----	Moderately limited ~shrink-swell (moderately limited)	0.45	Moderately limited ~shrink-swell (moderately limited)	0.36	Moderately limited ~slope (moderately limited) ~shrink-swell (moderately limited)	0.45  0.45	Very limited ~low strength (very limited) ~shrink-swell (moderately limited)	1.00  0.45	Not limited	
73144: Courtois-----	Limited ~slope (limited) ~shrink-swell (moderately limited)	0.68  0.45	Limited ~slope (limited) ~shrink-swell (moderately limited)	0.68  0.36	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00  0.45	Very limited ~low strength (very limited) ~shrink-swell (moderately limited) ~slope (moderately limited)	1.00  0.45  0.37	Moderately limited ~slope (moderately limited)	0.37

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73145: Crider-----	Not limited		Slightly limited ~shrink-swell (slightly limited)	0.07	Moderately limited ~slope (moderately limited)	0.45	Very limited ~low strength (very limited)	1.00	Not limited	
73146: Marquand-----	Moderately limited ~wetness (moderately limited)	0.52	Very limited ~wetness (very limited)	1.00	Limited ~slope (limited) ~wetness (slightly limited)	0.68 0.15	Very limited ~low strength (very limited) ~wetness (slightly limited)	1.00 0.15	Slightly limited ~wetness (slightly limited)	0.15
73147: Fourche-----	Moderately limited ~wetness (moderately limited)	0.45	Very limited ~wetness (very limited)	1.00	Moderately limited ~slope (moderately limited)	0.45	Very limited ~low strength (very limited)	1.00	Not limited	
73148: Jonca-----	Moderately limited ~wetness (moderately limited)	0.45	Very limited ~wetness (very limited) ~depth to bedrock (slightly limited)	1.00 0.25	Limited ~slope (limited)	0.68	Very limited ~low strength (very limited)	1.00	Moderately limited ~too acid (moderately limited)	0.54
73149: Caneyville-----	Moderately limited ~depth to bedrock (moderately limited) ~shrink-swell (moderately limited)	0.45 0.45	Very limited ~hard bedrock <40" (very limited) ~shrink-swell (moderately limited)	1.00 0.45	Limited ~slope (limited) ~depth to bedrock (moderately limited) ~shrink-swell (moderately limited)	0.68 0.45 0.45	Very limited ~low strength (very limited) ~depth to bedrock (moderately limited) ~shrink-swell (moderately limited)	1.00 0.45 0.45	Slightly limited ~depth to bedrock (slightly limited)	0.30
Bucklick-----	Moderately limited ~shrink-swell (moderately limited)	0.45	Limited ~shrink-swell (limited) ~depth to bedrock (limited)	0.93 0.75	Limited ~slope (limited) ~shrink-swell (moderately limited)	0.68 0.45	Very limited ~low strength (very limited) ~shrink-swell (moderately limited)	1.00 0.45	Not limited	
73150: Caneyville-----	Limited ~slope (limited) ~depth to bedrock (moderately limited) ~shrink-swell (moderately limited)	0.76 0.45 0.45	Very limited ~hard bedrock <40" (very limited) ~slope (limited) ~shrink-swell (moderately limited)	1.00 0.76 0.45	Very limited ~slope (very limited) ~depth to bedrock (moderately limited) ~shrink-swell (moderately limited)	1.00 0.45 0.45	Very limited ~low strength (very limited) ~slope (limited) ~depth to bedrock (moderately limited)	1.00 0.63 0.45	Limited ~slope (limited) ~depth to bedrock (slightly limited)	0.63 0.30

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73150:										
Bucklick-----	Very limited ~shrink-swell (very limited) ~slope (limited)	1.00  0.76	Very limited ~shrink-swell (very limited) ~slope (limited) ~depth to bedrock (limited)	1.00  0.76 0.75	Very limited ~slope (very limited) ~shrink-swell (very limited)	1.00  1.00	Very limited ~shrink-swell (very limited) ~low strength (very limited) ~slope (limited)	1.00  1.00 0.63	Limited ~slope (limited)	0.63
73151:										
Caneyville-----	Very limited ~slope (very limited) ~shrink-swell (moderately limited) ~depth to bedrock (moderately limited)	1.00  0.45 0.43	Very limited ~hard bedrock <40" (very limited) ~slope (very limited) ~shrink-swell (moderately limited)	1.00  1.00 0.45	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00  0.45 0.43	Very limited ~low strength (very limited) ~slope (very limited) ~shrink-swell (moderately limited)	1.00  1.00 0.45	Very limited ~slope (very limited) ~depth to bedrock (slightly limited)	1.00  0.28
Gasconade-----	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~shrink-swell (moderately limited)	1.00  1.00 0.45	Very limited ~hard bedrock <40" (very limited) ~slope (very limited) ~shrink-swell (moderately limited)	1.00  1.00 0.45	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~shrink-swell (moderately limited)	1.00  1.00 0.45	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~shrink-swell (moderately limited)	1.00  1.00 0.45	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~too clayey (very limited)	1.00  1.00 1.00
Bucklick-----	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00  0.45	Very limited ~slope (very limited) ~shrink-swell (limited) ~depth to bedrock (limited)	1.00  0.92 0.72	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00  0.45	Very limited ~slope (very limited) ~low strength (very limited) ~shrink-swell (moderately limited)	1.00  1.00 0.45	Very limited ~slope (very limited)	1.00
73152:										
Lily-----	Moderately limited ~depth to bedrock (moderately limited)	0.60	Very limited ~hard bedrock <40" (very limited)	1.00	Limited ~slope (limited) ~depth to bedrock (moderately limited)	0.68  0.60	Moderately limited ~depth to bedrock (moderately limited) ~low strength (slightly limited)	0.60  0.22	Moderately limited ~depth to bedrock (moderately limited) ~too acid (slightly limited)	0.60  0.18

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value						
73152: Ramsey-----	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00
					~slope (limited)	0.68			~droughty (limited)	0.98
									~too acid (moderately limited)	0.48
73153: Lily-----	Limited ~slope (limited)	0.76	Very limited ~hard bedrock <40" (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63
	~depth to bedrock (moderately limited)	0.60	~slope (limited)	0.76	~depth to bedrock (moderately limited)	0.60	~depth to bedrock (moderately limited)	0.60	~depth to bedrock (moderately limited)	0.60
									~too acid (moderately limited)	0.36
Ramsey-----	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (very limited)	1.00	~slope (limited)	0.63	~droughty (limited)	0.98
									~slope (limited)	0.63
73154: Ramsey-----	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00						
									~droughty (limited)	0.98
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73155: Gasconade-----	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~hard bedrock <20" (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~too clayey (very limited)	1.00						
	~shrink-swell (moderately limited)	0.45	~droughty (very limited)	1.00						
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73156: Alred-----	Limited ~slope (limited)	0.76	Limited ~slope (limited) ~shrink-swell (slightly limited)	0.76 0.09	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.63	Limited ~slope (limited) ~too acid (slightly limited)	0.63 0.12
Gepp-----	Limited ~slope (limited) ~shrink-swell (moderately limited)	0.76 0.45	Limited ~slope (limited) ~shrink-swell (moderately limited)	0.76 0.45	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00 0.45	Very limited ~low strength (very limited) ~slope (limited) ~shrink-swell (moderately limited)	1.00 0.63 0.45	Very limited ~small stones (very limited) ~slope (limited) ~too acid (limited)	1.00 0.63 0.60
73157: Captina-----	Moderately limited ~wetness (moderately limited)	0.51	Very limited ~wetness (very limited) ~shrink-swell (slightly limited)	1.00 0.08	Limited ~slope (limited) ~wetness (slightly limited)	0.68 0.13	Very limited ~low strength (very limited) ~wetness (slightly limited)	1.00 0.13	Slightly limited ~wetness (slightly limited)	0.13
74644: Deible-----	Very limited ~wetness (very limited) ~shrink-swell (very limited)	1.00 1.00	Very limited ~wetness (very limited) ~shrink-swell (limited)	1.00 0.81	Very limited ~wetness (very limited) ~shrink-swell (very limited)	1.00 1.00	Very limited ~low strength (very limited) ~wetness (very limited) ~shrink-swell (very limited)	1.00 1.00 1.00	Very limited ~wetness (very limited)	1.00
74645: Higdon-----	Limited ~wetness (limited) ~shrink-swell (moderately limited)	0.99 0.45	Very limited ~wetness (very limited) ~shrink-swell (moderately limited)	1.00 0.39	Limited ~wetness (limited) ~shrink-swell (moderately limited)	0.60 0.45	Very limited ~low strength (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00 0.60 0.45	Limited ~wetness (limited)	0.60
74646: Cornwall-----	Moderately limited ~wetness (moderately limited)	0.51	Very limited ~wetness (very limited)	1.00	Limited ~slope (limited) ~wetness (slightly limited)	0.68 0.13	Very limited ~low strength (very limited) ~wetness (slightly limited)	1.00 0.13	Slightly limited ~wetness (slightly limited)	0.13

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74647: Cornwall-----	Limited ~slope (limited) ~wetness (moderately limited)	0.76  0.51	Very limited ~wetness (very limited) (limited)	1.00  0.76	Very limited ~slope (very limited) ~wetness (slightly limited)	1.00  0.13	Very limited ~low strength (very limited) ~slope (limited) ~wetness (slightly limited)	1.00  0.63  0.13	Limited ~slope (limited) ~wetness (slightly limited)	0.63  0.13
74648: Aslinger-----	Moderately limited ~wetness (moderately limited)	0.59	Very limited ~wetness (very limited)	1.00	Slightly limited ~wetness (slightly limited) ~slope (slightly limited)	0.28  0.15	Slightly limited ~wetness (slightly limited)	0.28	Slightly limited ~wetness (slightly limited) ~too acid (slightly limited)	0.28  0.18
74649: Aslinger-----	Moderately limited ~wetness (moderately limited) ~slope (moderately limited)	0.59  0.45	Very limited ~wetness (very limited) (moderately limited)	1.00  0.45	Very limited ~slope (very limited) ~wetness (slightly limited)	1.00  0.28	Slightly limited ~wetness (slightly limited) ~slope (slightly limited)	0.28  0.04	Limited ~too acid (limited) ~wetness (slightly limited) ~droughty (slightly limited)	0.60  0.28  0.06
Waben-----	Slightly limited ~large stones (slightly limited)	0.00	Slightly limited ~large stones (slightly limited)	0.00	Moderately limited ~slope (moderately limited) ~large stones (slightly limited)	0.45  0.00	Slightly limited ~large stones (slightly limited)	0.00	Slightly limited ~large stones (slightly limited) ~droughty (slightly limited)	0.19  0.00
74650: Higdon-----	Very limited ~flooding (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00  0.79  0.45	Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (slightly limited)	1.00  1.00  0.29	Very limited ~flooding (very limited) ~wetness (moderately limited) ~shrink-swell (moderately limited)	1.00  0.45  0.45	Very limited ~flooding (very limited) ~low strength (very limited) ~wetness (moderately limited)	1.00  1.00  0.45	Moderately limited ~flooding (moderately limited) ~wetness (moderately limited) ~too acid (moderately limited)	0.60  0.45  0.36
74684: Raccoon-----	Very limited ~wetness (very limited) ~flooding (very limited)	1.00  1.00	Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (slightly limited)	1.00  1.00  0.17	Very limited ~flooding (very limited) ~wetness (very limited)	1.00  1.00	Very limited ~wetness (very limited) ~flooding (rare) (limited) ~low strength (limited)	1.00  0.90  0.78	Very limited ~wetness (very limited)	1.00

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75381: Bearthicket----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~low strength (very limited) ~flooding (rare) (limited)	1.00  0.90	Not limited	
75395: Jamesfin-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited) ~wetness (slightly limited)	1.00  0.16	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited) ~low strength (very limited)	1.00  1.00	Moderately limited ~flooding (moderately limited)	0.60
75408: Secesh-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Limited ~flooding (rare) (limited)	0.90	Slightly limited ~large stones (slightly limited)	0.01
75409: Relfe-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Limited ~droughty (limited) ~flooding (moderately limited)	0.84  0.60
75410: Relfe-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited) ~droughty (limited) ~small stones (slightly limited)	1.00  0.96  0.21
75411: Tilk-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Limited ~flooding (rare) (limited)	0.90	Very limited ~small stones (very limited) ~large stones (moderately limited) ~too acid (slightly limited)	1.00  0.30  0.18
75416: Gladden-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Moderately limited ~flooding (moderately limited)	0.60

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77000:										
Killarney-----	Very limited ~slope (very limited) ~wetness (moderately limited) ~large stones (slightly limited)	1.00  0.45 0.00	Very limited ~slope (very limited) ~wetness (very limited) ~large stones (slightly limited)	1.00  1.00 0.00	Very limited ~slope (very limited) ~large stones (slightly limited)	1.00  0.00	Very limited ~slope (very limited) ~large stones (slightly limited)	1.00  0.00	Very limited ~slope (very limited) ~small stones (limited) ~large stones (limited)	1.00  0.85 0.64
Frenchmill-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~large stones (limited) ~small stones (moderately limited)	1.00  0.83 0.43
77001:										
Loughboro-----	Very limited ~wetness (very limited) ~shrink-swell (very limited)	1.00  1.00	Very limited ~wetness (very limited) ~shrink-swell (very limited)	1.00  1.00	Very limited ~shrink-swell (very limited) ~wetness (limited)	1.00  0.81	Very limited ~low strength (very limited) ~shrink-swell (very limited) ~wetness (limited)	1.00  1.00 0.81	Limited ~wetness (limited)	0.81
77002:										
Delassus-----	Moderately limited ~wetness (moderately limited)	0.54	Very limited ~wetness (very limited) ~depth to bedrock (slightly limited)	1.00  0.27	Limited ~slope (limited) ~wetness (slightly limited)	0.68  0.19	Very limited ~low strength (very limited) ~wetness (slightly limited)	1.00  0.19	Slightly limited ~wetness (slightly limited) ~too acid (slightly limited)	0.19  0.18
77003:										
Delassus-----	Limited ~slope (limited) ~wetness (moderately limited)	0.76  0.54	Very limited ~wetness (very limited) ~slope (limited) ~depth to bedrock (slightly limited)	1.00  0.76 0.27	Very limited ~slope (very limited) ~wetness (slightly limited)	1.00  0.19	Limited ~slope (limited) ~wetness (slightly limited)	0.63  0.19	Very limited ~large stones >30% (very limited) ~slope (limited) ~small stones (moderately limited)	1.00  0.63 0.51

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value						
77004: Irondale-----	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00  0.86	Very limited ~hard bedrock <40" (very limited) ~slope (very limited)	1.00  1.00	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00  0.86	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00  0.86	Very limited ~slope (very limited) ~small stones (limited) ~depth to bedrock (limited)	1.00  0.91  0.86
77005: Hassler-----	Very limited ~slope (very limited) ~wetness (moderately limited) ~large stones (slightly limited)	1.00  0.55  0.04	Very limited ~wetness (very limited) ~slope (very limited) ~depth to bedrock (limited)	1.00  1.00  0.91	Very limited ~slope (very limited) ~wetness (slightly limited) ~large stones (slightly limited)	1.00  0.21  0.04	Very limited ~slope (very limited) ~wetness (slightly limited) ~large stones (slightly limited)	1.00  0.21  0.04	Very limited ~slope (very limited) ~wetness (slightly limited)	1.00  0.21  0.21
Syenite-----	Very limited ~slope (very limited) ~depth to bedrock (moderately limited)	1.00  0.47	Very limited ~hard bedrock <40" (very limited) ~slope (very limited)	1.00  1.00	Very limited ~slope (very limited) ~depth to bedrock (moderately limited)	1.00  0.47	Very limited ~slope (very limited) ~depth to bedrock (moderately limited)	1.00  0.47	Very limited ~slope (very limited) ~too acid (moderately limited) ~depth to bedrock (moderately limited)	1.00  0.48  0.35
77006: Roselle-----	Not limited		Not limited		Limited ~slope (limited)	0.68	Not limited		Not limited	
77007: Taumsauk-----	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~large stones (slightly limited)	1.00  1.00  0.12	Very limited ~hard bedrock <40" (very limited) ~slope (very limited) ~large stones (slightly limited)	1.00  1.00  0.12	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~large stones (slightly limited)	1.00  1.00  0.12	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~large stones (slightly limited)	1.00  1.00  0.12	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~droughty (very limited)	1.00  1.00  1.00
Irondale-----	Very limited ~slope (very limited) ~depth to bedrock (limited) ~large stones (slightly limited)	1.00  0.86  0.07	Very limited ~hard bedrock <40" (very limited) ~slope (very limited) ~large stones (slightly limited)	1.00  1.00  0.07	Very limited ~slope (very limited) ~depth to bedrock (limited) ~large stones (slightly limited)	1.00  0.86  0.07	Very limited ~slope (very limited) ~depth to bedrock (limited) ~large stones (slightly limited)	1.00  0.86  0.07	Very limited ~slope (very limited) ~small stones (very limited) ~depth to bedrock (limited)	1.00  1.00  0.86

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77007: Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
77008: Hassler-----	Moderately limited ~wetness (moderately limited)	0.55	Very limited ~wetness (very limited)	1.00	Limited ~slope (limited)	0.99	Limited ~low strength (limited)	0.78	Slightly limited ~too acid (slightly limited)	0.24
	~slope (moderately limited)	0.30	~depth to bedrock (limited)	0.69	~wetness (slightly limited)	0.21	~wetness (slightly limited)	0.21	~wetness (slightly limited)	0.21
			~slope (moderately limited)	0.30						
77009: Trackler-----	Moderately limited ~wetness (moderately limited)	0.54	Very limited ~wetness (very limited)	1.00	Limited ~slope (limited)	0.68	Slightly limited ~large stones (slightly limited)	0.19	Slightly limited ~wetness (slightly limited)	0.19
	~large stones (slightly limited)	0.19	~depth to bedrock (limited)	0.79	~large stones (slightly limited)	0.19	~wetness (slightly limited)	0.19		
			~large stones (slightly limited)	0.19	~wetness (slightly limited)	0.19				
77010: Trackler-----	Limited ~slope (limited)	0.68	Very limited ~wetness (very limited)	1.00	Very limited ~slope (very limited)	1.00	Moderately limited ~slope (moderately limited)	0.37	Moderately limited ~slope (moderately limited)	0.37
	~wetness (moderately limited)	0.54	~depth to bedrock (limited)	0.79	~wetness (slightly limited)	0.19	~wetness (slightly limited)	0.19	~too acid (slightly limited)	0.24
			~slope (limited)	0.68					~wetness (slightly limited)	0.19
Irondale-----	Limited ~depth to bedrock (limited)	0.86	Very limited ~hard bedrock <40" (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~depth to bedrock (limited)	0.86	Very limited ~small stones (very limited)	1.00
	~slope (limited)	0.68	~slope (limited)	0.68	~depth to bedrock (limited)	0.86	~slope (moderately limited)	0.37	~depth to bedrock (limited)	0.86
									~droughty (limited)	0.66
78250: Skrainka-----	Moderately limited ~shrink-swell (moderately limited)	0.45	Moderately limited ~shrink-swell (moderately limited)	0.41	Limited ~slope (limited)	0.68	Very limited ~low strength (very limited)	1.00	Not limited	
					~shrink-swell (moderately limited)	0.45	~shrink-swell (moderately limited)	0.45		

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value								
78251:										
Skrainka-----	Limited		Limited		Very limited		Very limited		Limited	
	~slope	0.76	~slope	0.76	~slope	1.00	~low strength	1.00	~slope	0.63
	(limited)		(limited)		(very limited)		(very limited)		(limited)	
	~shrink-swell	0.45	~shrink-swell	0.36	~shrink-swell	0.45	~slope	0.63	~too acid	0.24
	(moderately limited)		(moderately limited)		(moderately limited)		(limited)		(slightly limited)	
							~shrink-swell	0.45		
							(moderately limited)			
99001:										
Water-----	Not rated									
99006:										
Psammets-----	Not rated									
99008:										
Udorthents-----	Not rated									
Dumps-----	Not rated									

Table 13.--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 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055:										
Alred-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~percs slowly (limited)	0.94	~seepage (moderately limited)	0.50	~too clayey (limited)	0.94	~too clayey (limited)	0.87	~too clayey (limited)	0.87
					~too acid (moderately limited)	0.36		~hard to pack (limited)	0.70	0.70
Rueter-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~large stones (slightly limited)	0.29	~seepage (very limited)	1.00	~too clayey (limited)	0.92	~seepage (limited)	0.75	~too clayey (limited)	0.83
	~percs slowly (slightly limited)	0.25			~large stones (limited)	0.63		~small stones (limited)	0.80	0.80
73139:										
Poynor-----	Limited ~slope (limited)	0.63	Very limited ~slope (very limited)	1.00	Very limited ~too clayey (very limited)	1.00	Limited ~seepage (limited)	0.75	Very limited ~too clayey (very limited)	1.00
	~percs slowly (slightly limited)	0.25	~seepage (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~hard to pack (limited)	0.70
					~too acid (moderately limited)	0.36		~slope (limited)	0.63	0.63
Clarksville----	Limited ~slope (limited)	0.63	Very limited ~slope (very limited)	1.00	Limited ~too clayey (limited)	0.74	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63
	~percs slowly (slightly limited)	0.25	~seepage (moderately limited)	0.50	~slope (limited)	0.63		~small stones (moderately limited)	0.59	0.59
								~too clayey (moderately limited)	0.51	0.51
Scholten-----	Very limited ~wetness (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Limited ~too clayey (limited)	0.78
	~percs slowly (very limited)	1.00	~seepage (very limited)	1.00	~too clayey (limited)	0.89	~slope (limited)	0.63	~wetness (limited)	0.78
	~slope (limited)	0.63	~wetness (moderately limited)	0.50	~seepage (limited)	0.79		~hard to pack (limited)	0.70	0.70

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73140: Clarksville----	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00  0.25	Very limited ~slope (very limited) ~seepage (very limited)	1.00  1.00	Very limited ~slope (very limited) ~too clayey (limited) ~too acid (slightly limited)	1.00  0.84  0.24	Very limited ~slope (very limited) ~seepage (limited)	1.00  0.75	Very limited ~slope (very limited) ~small stones >35% (very limited) ~too clayey (limited)	1.00  1.00  0.68
Scholten-----	Very limited ~slope (very limited) ~wetness (very limited) ~percs slowly (very limited)	1.00  1.00  1.00	Very limited ~slope (very limited) ~wetness (very limited) ~seepage (very limited)	1.00  1.00  1.00	Very limited ~slope (very limited) ~seepage (limited) ~wetness (limited)	1.00  0.79  0.72	Very limited ~slope (very limited) ~wetness (moderately limited)	1.00  0.48	Very limited ~slope (very limited) ~small stones >35% (very limited) ~wetness (moderately limited)	1.00  1.00  0.36
73141: Firebaugh-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.93	Very limited ~wetness (very limited) ~slope (limited) ~seepage (moderately limited)	1.00  0.91  0.50	Very limited ~wetness (very limited) ~too clayey (limited) ~too acid (moderately limited)	1.00  0.82  0.48	Limited ~wetness (limited)	0.86	Limited ~small stones (limited) ~too clayey (limited) ~wetness (moderately limited)	0.73  0.64  0.53
73142: Firebaugh-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~slope (limited)	1.00  0.93  0.63	Very limited ~slope (very limited) ~wetness (very limited) ~seepage (moderately limited)	1.00  1.00  0.50	Very limited ~wetness (very limited) ~slope (limited) ~too acid (limited)	1.00  0.63  0.60	Limited ~wetness (limited) ~slope (limited)	0.86  0.63	Limited ~slope (limited) ~too acid (limited) ~wetness (moderately limited)	0.63  0.60  0.53
73143: Courtois-----	Slightly limited ~percs slowly (slightly limited)	0.25	Limited ~slope (limited) ~seepage (moderately limited)	0.66  0.50	Very limited ~too clayey (very limited) ~too acid (slightly limited)	1.00  0.24	Not limited		Very limited ~too clayey (very limited) ~hard to pack (limited) ~too acid (slightly limited)	1.00  0.70  0.24

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73144: Courtois-----	Moderately limited ~slope (moderately limited) ~percs slowly (slightly limited)	0.37  0.25	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00  0.50	Very limited ~too clayey (very limited) ~slope (moderately limited) ~too acid (slightly limited)	1.00  0.37  0.24	Moderately limited ~slope (moderately limited)	0.37	Very limited ~too clayey (very limited) ~hard to pack (limited) ~slope (moderately limited)	1.00  0.70  0.37
73145: Crider-----	Slightly limited ~percs slowly (slightly limited)	0.25	Limited ~slope (limited) ~seepage (moderately limited)	0.66  0.50	Slightly limited ~too clayey (slightly limited) ~too acid (slightly limited)	0.27  0.12	Not limited		Slightly limited ~too clayey (slightly limited) ~too acid (slightly limited)	0.13  0.12
73146: Marquand-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.71	Very limited ~wetness (very limited) ~slope (limited)	1.00  0.91	Limited ~wetness (limited) ~too acid (moderately limited) ~too clayey (moderately limited)	0.90  0.42  0.37	Limited ~wetness (limited)	0.70	Moderately limited ~wetness (moderately limited) ~too acid (moderately limited) ~too clayey (slightly limited)	0.45  0.42  0.18
73147: Fourche-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.71	Very limited ~wetness (very limited) ~slope (limited)	1.00  0.66	Very limited ~too clayey (very limited) ~wetness (limited) ~too acid (limited)	1.00  0.79  0.60	Limited ~wetness (limited)	0.60	Very limited ~too clayey (very limited) ~too acid (limited) ~wetness (moderately limited)	1.00  0.60  0.40
73148: Jonca-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~depth to bedrock (slightly limited)	1.00  0.96  0.25	Very limited ~wetness (very limited) ~slope (limited) ~seepage (moderately limited)	1.00  0.91  0.32	Very limited ~depth to bedrock (very limited) ~wetness (limited) ~too acid (moderately limited)	1.00  0.79  0.54	Limited ~wetness (limited)	0.60	Moderately limited ~too acid (moderately limited) ~wetness (moderately limited) ~too clayey (slightly limited)	0.54  0.40  0.01

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73149:										
Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (limited)	0.71	~slope (limited)	0.91	~too clayey (limited)	0.87			~too clayey (limited)	0.73
									~hard to pack (limited)	0.70
Bucklick-----	Limited		Limited		Very limited		Moderately limited		Limited	
	~depth to bedrock (limited)	0.75	~slope (limited)	0.91	~depth to bedrock (very limited)	1.00	~depth to bedrock (moderately limited)	0.57	~too clayey (limited)	0.80
	~percs slowly (slightly limited)	0.25	~depth to bedrock (limited)	0.75	~too clayey (limited)	0.90			~depth to bedrock (moderately limited)	0.57
			~seepage (moderately limited)	0.50						
73150:										
Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (limited)	0.71	~depth to bedrock (very limited)	1.00	~too clayey (very limited)	1.00	~slope (limited)	0.63	~too clayey (very limited)	1.00
	~slope (limited)	0.63			~slope (limited)	0.63			~hard to pack (limited)	0.70
Bucklick-----	Limited		Very limited		Very limited		Limited		Limited	
	~depth to bedrock (limited)	0.75	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (limited)	0.63	~too clayey (limited)	0.91
	~slope (limited)	0.63	~depth to bedrock (limited)	0.75	~too clayey (limited)	0.96	~depth to bedrock (moderately limited)	0.57	~hard to pack (limited)	0.70
	~percs slowly (slightly limited)	0.25	~seepage (moderately limited)	0.50	~slope (limited)	0.63			~slope (limited)	0.63
73151:										
Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.71			~too clayey (limited)	0.87			~too clayey (limited)	0.73

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73151:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (moderately limited)	0.44	~large stones (limited)	0.98	~large stones (moderately limited)	0.53			~large stones (slightly limited)	0.15
Bucklick-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.72	~depth to bedrock (limited)	0.72	~depth to bedrock (very limited)	1.00	~depth to bedrock (moderately limited)	0.54	~too clayey (limited)	0.80
	~percs slowly (slightly limited)	0.25	~seepage (moderately limited)	0.50	~too clayey (limited)	0.90			~depth to bedrock (moderately limited)	0.54
73152:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
			~seepage (very limited)	1.00	~seepage (limited)	0.79	~seepage (limited)	0.75	~seepage (moderately limited)	0.50
			~slope (limited)	0.91	~too acid (moderately limited)	0.36			~too acid (moderately limited)	0.36
Ramsey-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~seepage (very limited)	1.00
			~slope (limited)	0.91	~seepage (very limited)	1.00			~depth to bedrock (very limited)	1.00
					~too acid (moderately limited)	0.54			~too acid (moderately limited)	0.54
73153:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (limited)	0.63	~depth to bedrock (very limited)	1.00	~seepage (limited)	0.79	~seepage (limited)	0.75	~slope (limited)	0.63
			~seepage (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~seepage (moderately limited)	0.50

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73153: Ramsey-----	Very limited ~depth to bedrock (very limited) ~slope (limited)	1.00  0.63	Very limited ~slope (very limited) ~depth to bedrock (very limited)	1.00  1.00	Very limited ~depth to bedrock (very limited) ~seepage (very limited) ~slope (limited)	1.00  1.00  0.63	Very limited ~depth to bedrock (very limited) ~slope (limited)	1.00  0.63	Very limited ~seepage (very limited) ~depth to bedrock (very limited) ~slope (limited)	1.00  1.00  0.63
73154: Ramsey-----	Very limited ~depth to bedrock (very limited) ~slope (very limited)	1.00  1.00	Very limited ~slope (very limited) ~depth to bedrock (very limited)	1.00  1.00	Very limited ~depth to bedrock (very limited) ~seepage (very limited) ~slope (very limited)	1.00  1.00  1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited)	1.00  1.00	Very limited ~seepage (very limited) ~depth to bedrock (very limited) ~slope (very limited)	1.00  1.00  1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73155: Gasconade-----	Very limited ~depth to bedrock (very limited) ~slope (very limited)	1.00  1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited)	1.00  1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~too clayey (limited)	1.00  1.00  0.62	Very limited ~depth to bedrock (very limited) ~slope (very limited)	1.00  1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~small stones (moderately limited)	1.00  1.00  0.32
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73156: Alred-----	Limited ~percs slowly (limited) ~slope (limited)	0.93  0.63	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00  0.50	Very limited ~too clayey (very limited) ~slope (limited) ~too acid (slightly limited)	1.00  0.63  0.18	Limited ~slope (limited)	0.63	Very limited ~too clayey (very limited) ~hard to pack (limited) ~slope (limited)	1.00  0.70  0.63
Gepp-----	Limited ~slope (limited) ~percs slowly (slightly limited)	0.63  0.25	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00  0.50	Very limited ~too clayey (very limited) ~slope (limited) ~too acid (slightly limited)	1.00  0.63  0.24	Limited ~slope (limited)	0.63	Very limited ~too clayey (very limited) ~hard to pack (limited) ~slope (limited)	1.00  0.70  0.63

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73157: Captina-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.93	Very limited ~wetness (very limited) ~slope (limited) ~seepage (moderately limited)	1.00  0.91 0.50	Limited ~too clayey (limited) ~wetness (limited) ~too acid (moderately limited)	0.93  0.89 0.54	Limited ~wetness (limited)	0.69	Limited ~too clayey (limited) ~too acid (moderately limited) ~wetness (moderately limited)	0.85  0.54 0.45
74644: Deible-----	Very limited ~wetness (very limited) ~percs slowly (very limited)	1.00  1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~too clayey (limited)	1.00  0.80	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~too clayey (moderately limited)	1.00  0.60
74645: Higdon-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.71	Very limited ~wetness (very limited) ~seepage (moderately limited)	1.00  0.50	Very limited ~wetness (very limited) ~too clayey (moderately limited)	1.00  0.44	Limited ~wetness (limited)	0.99	Moderately limited ~wetness (moderately limited) ~too clayey (slightly limited)	0.60  0.22
74646: Cornwall-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.93	Very limited ~wetness (very limited) ~slope (limited) ~seepage (moderately limited)	1.00  0.91 0.50	Limited ~wetness (limited) ~too acid (slightly limited) ~too clayey (slightly limited)	0.89  0.18 0.15	Limited ~wetness (limited)	0.69	Moderately limited ~wetness (moderately limited) ~too acid (slightly limited)	0.45  0.18
74647: Cornwall-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~slope (limited)	1.00  0.93 0.63	Very limited ~slope (very limited) ~wetness (very limited) ~seepage (moderately limited)	1.00  1.00 0.50	Limited ~wetness (limited) ~slope (limited) ~too acid (slightly limited)	0.89  0.63 0.24	Limited ~wetness (limited) ~slope (limited)	0.69  0.63	Limited ~slope (limited) ~wetness (moderately limited) ~too acid (slightly limited)	0.63  0.45 0.24

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74648: Aslinger-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00  0.82	Very limited ~wetness (very limited) ~seepage (moderately limited) ~slope (moderately limited)	1.00  0.32 0.31	Limited ~wetness (limited) ~too clayey (limited) ~too acid (moderately limited)	0.99  0.98 0.42	Limited ~wetness (limited)	0.80	Limited ~too clayey (limited) ~small stones (limited) ~hard to pack (limited)	0.95  0.73 0.70
74649: Aslinger-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~slope (slightly limited)	1.00  0.71 0.04	Very limited ~wetness (very limited) ~slope (very limited) ~seepage (moderately limited)	1.00  1.00 0.50	Limited ~wetness (limited) ~too clayey (limited) ~slope (slightly limited)	0.99  0.87 0.04	Limited ~wetness (limited) (slightly limited)	0.80  0.04	Limited ~too clayey (limited) ~wetness (moderately limited) ~slope (slightly limited)	0.73  0.50 0.04
Waben-----	Slightly limited ~large stones (slightly limited)	0.00	Very limited ~seepage (very limited) ~slope (limited) ~large stones (slightly limited)	1.00  0.66 0.03	Limited ~seepage (limited) ~too clayey (slightly limited) ~too acid (slightly limited)	0.79  0.24 0.12	Limited ~seepage (limited)	0.75	Limited ~small stones (limited) ~seepage (moderately limited) ~too acid (slightly limited)	0.99  0.50 0.12
74650: Higdon-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (limited)	1.00  1.00 0.73	Very limited ~flooding (very limited) ~wetness (very limited)	1.00  1.00	Very limited ~wetness (very limited) ~flooding (very limited) ~too clayey (slightly limited)	1.00  1.00 0.06	Very limited ~flooding (very limited) ~wetness (limited)	1.00  0.90	Moderately limited ~wetness (moderately limited)	0.55
74684: Raccoon-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~flooding (rare) (moderately limited)	1.00  0.93 0.60	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~flooding (rare) (moderately limited)	1.00  0.60	Very limited ~wetness (very limited) ~flooding (rare) (moderately limited)	1.00  0.60	Very limited ~wetness (very limited)	1.00

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75381: Bearthicket----	Moderately limited ~flooding (rare) (moderately limited) ~percs slowly (slightly limited)	0.60  0.25	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (rare) (moderately limited)	0.60	Moderately limited ~flooding (rare) (moderately limited)	0.60	Not limited	
75395: Jamesfin-----	Very limited ~flooding (very limited) ~wetness (moderately limited) ~percs slowly (slightly limited)	1.00  0.30  0.25	Very limited ~flooding (very limited) ~seepage (moderately limited)	1.00  0.50	Very limited ~flooding (very limited) ~wetness (slightly limited)	1.00  0.15	Very limited ~flooding (very limited)	1.00	Not limited	
75408: Secesh-----	Moderately limited ~flooding (rare) (moderately limited) ~percs slowly (slightly limited)	0.60  0.25	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (rare) (moderately limited) ~too clayey (moderately limited)	0.60  0.30	Moderately limited ~flooding (rare) (moderately limited)	0.60	Slightly limited ~small stones (slightly limited) ~too clayey (slightly limited)	0.28  0.15
75409, 75410: Relfe-----	Very limited ~flooding (very limited) ~poor filter (very limited)	1.00  1.00	Very limited ~flooding (very limited) ~seepage (very limited)	1.00  1.00	Very limited ~flooding (very limited) ~too sandy (very limited) ~seepage (very limited)	1.00  1.00  1.00	Very limited ~flooding (very limited) ~seepage (very limited)	1.00  1.00	Very limited ~seepage (very limited) ~too sandy (very limited) ~small stones >35% (very limited)	1.00  1.00  1.00
75411: Tilk-----	Moderately limited ~flooding (rare) (moderately limited)	0.60	Very limited ~seepage (very limited)	1.00	Limited ~seepage (limited) ~flooding (rare) (moderately limited) ~too acid (moderately limited)	0.79  0.60  0.36	Limited ~seepage (limited) ~flooding (rare) (moderately limited)	0.75  0.60	Very limited ~small stones >35% (very limited) ~seepage (moderately limited) ~too acid (moderately limited)	1.00  0.50  0.36

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75416: Gladden-----	Very limited ~flooding (very limited) ~poor filter (very limited) ~percs slowly (slightly limited)	1.00 1.00 0.25	Very limited ~flooding (very limited) ~seepage (very limited)	1.00 1.00	Very limited ~flooding (very limited) ~seepage (very limited)	1.00 1.00	Very limited ~flooding (very limited)	1.00	Not limited	
77000: Killarney-----	Very limited ~slope (very limited) ~wetness (very limited) ~percs slowly (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~wetness (very limited) ~large stones (slightly limited)	1.00 1.00 0.06	Very limited ~slope (very limited) ~wetness (limited) ~too acid (moderately limited)	1.00 1.00 0.79 0.48	Very limited ~slope (very limited) ~wetness (limited)	1.00 0.60	Very limited ~slope (very limited) ~small stones >35% (very limited) ~too acid (moderately limited)	1.00 1.00 0.48
Frenchmill-----	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.25	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited) ~too acid (moderately limited) ~too clayey (slightly limited)	1.00 0.48 0.12	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~too acid (moderately limited) ~small stones (slightly limited)	1.00 0.48 0.00
77001: Loughboro-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00 0.93	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~too acid (limited) ~too clayey (moderately limited)	1.00 0.83 0.55	Very limited ~wetness (very limited)	1.00	Limited ~too acid (limited) ~wetness (limited) ~hard to pack (limited)	0.83 0.81 0.70
77002: Delassus-----	Very limited ~wetness (very limited) ~percs slowly (very limited) ~depth to bedrock (slightly limited)	1.00 1.00 0.27	Very limited ~wetness (very limited) ~slope (limited) ~seepage (moderately limited)	1.00 0.91 0.50	Very limited ~depth to bedrock (very limited) ~wetness (limited) ~too acid (moderately limited)	1.00 0.92 0.54	Limited ~wetness (limited)	0.73	Moderately limited ~too acid (moderately limited) ~wetness (moderately limited) ~too clayey (slightly limited)	0.54 0.47 0.09

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77003: Delassus-----	Very limited ~wetness (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Limited ~wetness (limited)	0.73	Limited ~slope (limited)	0.63
	~percs slowly (very limited)	1.00	~wetness (very limited)	1.00	~wetness (limited)	0.92	~slope (limited)	0.63	~small stones (moderately limited)	0.55
	~slope (limited)	0.63	~seepage (moderately limited)	0.50	~slope (limited)	0.63			~too acid (moderately limited)	0.48
77004: Irondale-----	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
			~seepage (moderately limited)	0.50	~too acid (moderately limited)	0.42			~too acid (moderately limited)	0.42
77005: Hassler-----	Very limited ~wetness (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~slope (very limited)	1.00	~wetness (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (limited)	0.84	~depth to bedrock (limited)	0.84
	~depth to bedrock (limited)	0.91	~depth to bedrock (limited)	0.91	~wetness (limited)	0.94	~wetness (limited)	0.74	~wetness (moderately limited)	0.47
Syenite-----	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.74			~too acid (moderately limited)	0.54			~too acid (moderately limited)	0.54
77006: Roselle-----	Slightly limited ~percs slowly (slightly limited)	0.25	Very limited ~seepage (very limited)	1.00	Limited ~seepage (limited)	0.80	Not limited		Slightly limited ~too acid (slightly limited)	0.24
			~slope (limited)	0.91	~too acid (slightly limited)	0.24				

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77007:										
Taumsauk-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.12	~large stones (moderately limited)	0.40	~too acid (moderately limited)	0.48			~small stones (limited)	0.63
Irondale-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.07	~large stones (slightly limited)	0.25	~too acid (slightly limited)	0.24			~small stones (limited)	0.66
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
77008:										
Hassler-----	Very limited		Very limited		Very limited		Limited		Moderately limited	
	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~depth to bedrock (very limited)	1.00	~wetness (limited)	0.74	~too acid (moderately limited)	0.54
	~percs slowly (limited)	0.74	~slope (very limited)	1.00	~wetness (limited)	0.94	~depth to bedrock (moderately limited)	0.52	~depth to bedrock (moderately limited)	0.52
	~depth to bedrock (limited)	0.69	~depth to bedrock (limited)	0.69	~too acid (moderately limited)	0.54			~wetness (moderately limited)	0.47
77009:										
Trackler-----	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~depth to bedrock (very limited)	1.00	~wetness (limited)	0.73	~depth to bedrock (limited)	0.60
	~depth to bedrock (limited)	0.79	~slope (limited)	0.91	~wetness (limited)	0.92	~depth to bedrock (limited)	0.60	~wetness (moderately limited)	0.47
	~percs slowly (limited)	0.71	~depth to bedrock (limited)	0.79	~large stones (moderately limited)	0.35			~too acid (slightly limited)	0.30
77010:										
Trackler-----	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~wetness (limited)	0.73	~depth to bedrock (limited)	0.60
	~depth to bedrock (limited)	0.79	~wetness (very limited)	1.00	~wetness (limited)	0.92	~depth to bedrock (limited)	0.60	~too acid (moderately limited)	0.54
	~percs slowly (limited)	0.71	~depth to bedrock (limited)	0.79	~too acid (moderately limited)	0.54	~slope (moderately limited)	0.37	~wetness (moderately limited)	0.47

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77010: Irondale-----	Very limited ~depth to bedrock (very limited) ~slope (moderately limited)	1.00  0.37	Very limited ~slope (very limited) ~depth to bedrock (very limited) ~seepage (moderately limited)	1.00  1.00 0.50	Very limited ~depth to bedrock (very limited) ~too acid (moderately limited) ~slope (moderately limited)	1.00  0.48 0.37	Very limited ~depth to bedrock (very limited) ~slope (moderately limited)	1.00  0.37	Very limited ~depth to bedrock (very limited) ~small stones >35% (very limited) ~too acid (moderately limited)	1.00  1.00 0.48
78250: Skrainka-----	Limited ~percs slowly (limited)	0.74	Very limited ~seepage (very limited) ~slope (limited)	1.00  0.91	Limited ~too clayey (limited) ~seepage (limited)	0.79  0.79	Not limited		Moderately limited ~too clayey (moderately limited)	0.59
78251: Skrainka-----	Limited ~percs slowly (limited) ~slope (limited)	0.75  0.63	Very limited ~slope (very limited) ~seepage (very limited)	1.00  1.00	Limited ~too clayey (limited) ~seepage (limited) ~slope (limited)	0.79  0.79 0.63	Limited ~slope (limited)	0.63	Limited ~slope (limited) ~too clayey (moderately limited) ~seepage (moderately limited)	0.63  0.59 0.50
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99006: Psammments-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99008: Udorthents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Dumps-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 14.--Construction Materials and Excavating

(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 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055:										
Alred-----	Very limited ~shrink-swell (very limited) ~low strength (very limited) ~slope (limited)	1.00 1.00 0.92	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 0.75	Very limited ~slope (very limited) ~too clayey (very limited) ~small stones (limited)	1.00 1.00 0.88	Very limited ~slope (very limited) ~cutbanks cave (very limited) ~too clayey (limited)	1.00 1.00 0.87
Rueter-----	Limited ~slope (limited) ~large stones (slightly limited) ~shrink-swell (slightly limited)	0.92 0.29 0.09	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer) ~small stones (thickest layer)	1.00 1.00 0.66	Limited ~small stones (thickest layer) ~small stones (bottom layer) ~possible source (bottom layer)	0.66 0.66 0.50	Very limited ~slope (very limited) ~small stones (very limited) ~area reclaim (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~too clayey (limited) ~cutbanks cave (slightly limited)	1.00 0.83 0.29
73139:										
Poynor-----	Very limited ~low strength (very limited) ~shrink-swell (slightly limited)	1.00 0.21	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Possible source ~excess fines (bottom layer) ~possible source (thickest layer)	1.00 0.37	Very limited ~too clayey (very limited) ~slope (limited) ~small stones (moderately limited)	1.00 0.63 0.50	Very limited ~cutbanks cave (very limited) ~too clayey (very limited) ~slope (limited)	1.00 1.00 0.63
Clarksville----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 0.99	Very limited ~small stones (very limited) ~slope (limited) ~too sandy (slightly limited)	1.00 0.63 0.30	Very limited ~cutbanks cave (very limited) ~slope (limited) ~too clayey (moderately limited)	1.00 0.63 0.51
Scholten-----	Limited ~wetness (limited)	0.96	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 0.99	Very limited ~small stones (very limited) ~wetness (limited) ~slope (limited)	1.00 0.96 0.63	Very limited ~wetness (very limited) ~cutbanks cave (very limited) ~too clayey (limited)	1.00 1.00 0.78

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73140: Clarksville----	Very limited ~slope (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Possible source ~excess fines (bottom layer)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
			~excess fines (bottom layer)	1.00	~possible source (thickest layer)	0.50	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
							~area reclaim (very limited)	1.00	~too clayey (limited)	0.68
Scholten-----	Limited ~slope (limited)	0.92	Very limited ~excess fines (thickest layer)	1.00	Limited ~excess fines (bottom layer)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~wetness (slightly limited)	0.04	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.99	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
							~area reclaim (very limited)	1.00	~wetness (limited)	0.99
73141: Firebaugh-----	Limited ~wetness (limited)	0.64	Very limited ~excess fines (thickest layer)	1.00	Possible source ~possible source (thickest layer)	0.45	Very limited ~small stones (very limited)	1.00	Very limited ~wetness (very limited)	1.00
	~shrink-swell (slightly limited)	0.00	~excess fines (bottom layer)	1.00	~small stones (thickest layer)	0.30	~area reclaim (very limited)	1.00	~cutbanks cave (very limited)	1.00
			~small stones (thickest layer)	0.30	~small stones (bottom layer)	0.30	~wetness (limited)	0.64	~too clayey (limited)	0.64
73142: Firebaugh-----	Limited ~low strength (limited)	0.78	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (thickest layer)	1.00	Limited ~small stones (limited)	0.68	Very limited ~wetness (very limited)	1.00
	~wetness (limited)	0.64	~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (limited)	0.66	~cutbanks cave (very limited)	1.00
							~wetness (limited)	0.64	~slope (limited)	0.63
73143: Courtois-----	Very limited ~low strength (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~too clayey (very limited)	1.00	Very limited ~cutbanks cave (very limited)	1.00
	~shrink-swell (moderately limited)	0.36	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too acid (slightly limited)	0.24	~too clayey (very limited)	1.00
							~area reclaim (slightly limited)	0.08		

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73144: Courtois-----	Very limited ~low strength (very limited) ~shrink-swell (moderately limited)	1.00  0.36	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~too clayey (very limited) ~slope (moderately limited) ~too acid (slightly limited)	1.00  0.37 0.24	Very limited ~cutbanks cave (very limited) ~too clayey (very limited) ~slope (moderately limited)	1.00  1.00 0.37
73145: Crider-----	Very limited ~low strength (very limited) ~shrink-swell (slightly limited)	1.00  0.07	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Slightly limited ~too clayey (slightly limited)	0.29	Slightly limited ~cutbanks cave (slightly limited) ~too clayey (slightly limited)	0.29 0.13
73146: Marquand-----	Very limited ~low strength (very limited) ~wetness (slightly limited)	1.00  0.28	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too clayey (moderately limited) ~too acid (moderately limited) ~wetness (slightly limited)	0.39  0.36 0.28	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited) ~too clayey (slightly limited)	1.00  0.29 0.18
73147: Fourche-----	Very limited ~low strength (very limited) ~wetness (slightly limited)	1.00  0.12	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Moderately limited ~too clayey (moderately limited) ~wetness (slightly limited) ~too acid (slightly limited)	0.43  0.12 0.06	Very limited ~too clayey (very limited) ~wetness (very limited) ~cutbanks cave (slightly limited)	1.00  1.00 0.29
73148: Jonca-----	Very limited ~low strength (very limited) ~wetness (slightly limited)	1.00  0.12	Not rated Not Rated ~excess fines (thickest layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~dense layer <20" (very limited) ~too acid (moderately limited) ~too clayey (moderately limited)	1.00  0.54 0.52	Very limited ~dense layer <20" (very limited) ~wetness (very limited) ~cutbanks cave (slightly limited)	1.00  1.00 0.29

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73149:										
Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~depth to bedrock (very limited)	0.99	~too clayey (limited)	0.73
	~shrink-swell (moderately limited)	0.45							~cutbanks cave (slightly limited)	0.29
Bucklick-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.80
	~shrink-swell (limited)	0.93	~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (slightly limited)	0.16	~depth to bedrock (limited)	0.75
	~depth to bedrock (moderately limited)	0.57							~cutbanks cave (slightly limited)	0.29
73150:										
Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~depth to bedrock (very limited)	0.99	~too clayey (very limited)	1.00
	~shrink-swell (moderately limited)	0.45					~slope (limited)	0.63	~slope (limited)	0.63
Bucklick-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~shrink-swell (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.91
	~low strength (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~slope (limited)	0.63	~depth to bedrock (limited)	0.75
	~depth to bedrock (moderately limited)	0.57					~depth to bedrock (slightly limited)	0.16	~slope (limited)	0.63
73151:										
Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~slope (very limited)	1.00
	~slope (moderately limited)	0.50					~depth to bedrock (limited)	0.95	~too clayey (limited)	0.73

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73151:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~slope (moderately limited)	0.50	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~small stones (thickest layer)	0.57	~small stones (thickest layer)	0.57	~small stones (very limited)	1.00	~large stones (moderately limited)	0.44
Bucklick-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~shrink-swell (limited)	0.92	~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~too clayey (limited)	0.80
	~depth to bedrock (moderately limited)	0.54					~depth to bedrock (slightly limited)	0.12	~depth to bedrock (limited)	0.72
73152:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~low strength (slightly limited)	0.22	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too acid (moderately limited)	0.36	~cutbanks cave (slightly limited)	0.29
							~too clayey (slightly limited)	0.29		
Ramsey-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too sandy (limited)	0.77	~cutbanks cave (slightly limited)	0.29
							~too acid (moderately limited)	0.54		
73153:										
Lily-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (limited)	0.63	~slope (limited)	0.63
							~small stones (moderately limited)	0.59	~cutbanks cave (slightly limited)	0.29

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73153: Ramsey-----	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too sandy (limited)	0.77	~slope (limited)	0.63
							~slope (limited)	0.63	~cutbanks cave (slightly limited)	0.29
73154: Ramsey-----	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00
	~slope (slightly limited)	0.25	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
							~too sandy (limited)	0.77	~cutbanks cave (slightly limited)	0.29
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73155: Gasconade-----	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~small stones (very limited)	1.00	~slope (very limited)	1.00
	~slope (moderately limited)	0.33					~too clayey (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73156: Alred-----	Very limited ~low strength (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Limited ~excess fines (bottom layer)	1.00	Very limited ~small stones (very limited)	1.00	Very limited ~cutbanks cave (very limited)	1.00
	~shrink-swell (slightly limited)	0.09	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.94	~slope (limited)	0.63	~too clayey (very limited)	1.00
							~too acid (moderately limited)	0.36	~slope (limited)	0.63
Gepp-----	Very limited ~low strength (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~too clayey (very limited)	1.00	Very limited ~too clayey (very limited)	1.00
	~shrink-swell (moderately limited)	0.45	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (limited)	0.63	~slope (limited)	0.63
							~too acid (slightly limited)	0.24	~cutbanks cave (slightly limited)	0.29

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73157: Captina-----	Very limited ~low strength (very limited) ~wetness (slightly limited) ~shrink-swell (slightly limited)	1.00  0.26  0.08	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Limited ~area reclaim (limited) ~too clayey (moderately limited) ~too acid (slightly limited)	0.97  0.53  0.30	Very limited ~wetness (very limited) ~cutbanks cave (very limited) ~too clayey (limited)	1.00  1.00  0.85
74644: Deible-----	Very limited ~wetness (very limited) ~low strength (very limited) ~shrink-swell (limited)	1.00  1.00  0.81	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Very limited ~wetness (very limited) ~too clayey (very limited) ~too acid (slightly limited)	1.00  1.00  0.18	Very limited ~wetness (very limited) ~too clayey (moderately limited) ~cutbanks cave (slightly limited)	1.00  0.60  0.29
74645: Higdon-----	Very limited ~low strength (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00  0.86  0.39	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00  1.00	Limited ~too clayey (limited) ~wetness (limited)	0.90  0.86	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited) ~too clayey (slightly limited)	1.00  0.29  0.22
74646: Cornwall-----	Very limited ~low strength (very limited) ~wetness (slightly limited)	1.00  0.26	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  0.94	Very limited ~area reclaim (very limited) ~wetness (slightly limited) ~too acid (slightly limited)	1.00  0.26  0.18	Very limited ~wetness (very limited) ~cutbanks cave (very limited)	1.00  1.00
74647: Cornwall-----	Very limited ~low strength (very limited) ~wetness (slightly limited)	1.00  0.26	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  1.00	Limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00  0.94	Limited ~slope (limited) ~too clayey (moderately limited) ~wetness (slightly limited)	0.63  0.55  0.26	Very limited ~wetness (very limited) ~cutbanks cave (very limited) ~slope (limited)	1.00  1.00  0.63

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74648: Aslinger-----	Moderately limited ~wetness (moderately limited)	0.48	Very limited ~excess fines (thickest layer)	1.00	Limited ~excess fines (bottom layer)	0.99	Very limited ~dense layer <20" (very limited)	1.00	Very limited ~dense layer <20" (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	0.99	~small stones (very limited)	1.00	~wetness (very limited)	1.00
							~area reclaim (very limited)	1.00	~cutbanks cave (very limited)	1.00
74649: Aslinger-----	Moderately limited ~wetness (moderately limited)	0.48	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Limited ~small stones (limited)	0.88	Very limited ~wetness (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~area reclaim (limited)	0.68	~cutbanks cave (very limited)	1.00
			~small stones (thickest layer)	0.66	~small stones (thickest layer)	0.66	~wetness (moderately limited)	0.48	~too clayey (limited)	0.73
Waben-----	Slightly limited ~large stones (slightly limited)	0.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~small stones (very limited)	1.00	Very limited ~cutbanks cave (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~area reclaim (very limited)	1.00	~too clayey (slightly limited)	0.10
							~large stones (slightly limited)	0.18	~large stones (slightly limited)	0.00
74650: Higdon-----	Very limited ~low strength (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Limited ~wetness (limited)	0.71	Very limited ~wetness (very limited)	1.00
	~wetness (limited)	0.71	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (moderately limited)	0.39	~flooding (moderately limited)	0.60
	~shrink-swell (slightly limited)	0.29						~cutbanks cave (slightly limited)	0.29	
74684: Raccoon-----	Very limited ~wetness (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
	~low strength (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00			~cutbanks cave (slightly limited)	0.29
	~shrink-swell (slightly limited)	0.17								

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75381: Bearthicket----	Very limited ~low strength (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 0.99	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Not limited		Slightly limited ~cutbanks cave (slightly limited)	0.29
75395: Jamesfin-----	Very limited ~low strength (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Not limited		Moderately limited ~flooding (moderately limited) ~cutbanks cave (slightly limited) ~wetness (slightly limited)	0.60 0.29 0.16
75408: Secesh-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~area reclaim (very limited) ~small stones (very limited) ~too clayey (slightly limited)	1.00 1.00 0.12	Very limited ~cutbanks cave (very limited) ~too clayey (slightly limited)	1.00 0.15
75409: Relfe-----	Not limited		Possible source ~excess fines (thickest layer) ~possible source (bottom layer)	1.00 0.25	Possible source ~excess fines (thickest layer) ~possible source (bottom layer)	1.00 0.40	Very limited ~too sandy (very limited) ~small stones (very limited) ~area reclaim (very limited)	1.00 1.00 1.00	Very limited ~cutbanks cave (very limited) ~flooding (moderately limited)	1.00 0.60
75410: Relfe-----	Not limited		Possible source ~excess fines (thickest layer) ~possible source (bottom layer)	0.88 0.16	Possible source ~excess fines (thickest layer) ~possible source (bottom layer)	1.00 0.50	Very limited ~too sandy (very limited) ~small stones (very limited) ~area reclaim (very limited)	1.00 1.00 1.00 1.00	Very limited ~cutbanks cave (very limited) ~flooding (moderately limited)	1.00 0.60

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75411: Tilk-----	Not limited		Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~small stones (very limited)	1.00	Very limited ~cutbanks cave (very limited)	1.00
			~excess fines (bottom layer)	0.99	~excess fines (thickest layer)	1.00	~area reclaim (very limited) ~too sandy (moderately limited)	1.00 0.38		
75416: Gladden-----	Not limited		Probable source ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Not limited		Very limited ~cutbanks cave (very limited)	1.00
					~excess fines (thickest layer)	1.00			~flooding (moderately limited)	0.60
77000: Killarney-----	Very limited ~slope (very limited) ~wetness (slightly limited) ~large stones (slightly limited)	1.00 0.12 0.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00 1.00	Possible source ~excess fines (thickest layer) ~possible source (bottom layer)	0.84 0.50	Very limited ~slope (very limited) ~small stones (very limited) ~large surface stones (very limited)	1.00 1.00 1.00 1.00	Very limited ~slope (very limited) ~cutbanks cave (very limited) ~wetness (very limited)	1.00 1.00 1.00 1.00
Frenchmill-----	Very limited ~slope (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer) ~small stones (bottom layer)	1.00 1.00 1.00 0.30	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer) ~small stones (bottom layer)	1.00 1.00 1.00 0.30	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones >25% (very limited)	1.00 1.00 1.00 1.00	Very limited ~slope (very limited) ~cutbanks cave (very limited) ~too clayey (slightly limited)	1.00 1.00 1.00 0.00
77001: Loughboro-----	Very limited ~low strength (very limited) ~shrink-swell (very limited) ~wetness (limited)	1.00 1.00 0.96	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Limited ~too clayey (limited) ~wetness (limited) ~too acid (limited)	0.99 0.96 0.84	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited) ~too clayey (slightly limited)	1.00 0.29 0.28

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77002: Delassus-----	Moderately limited ~wetness (moderately limited)	0.33	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Limited ~too clayey (limited)	0.66	Very limited ~wetness (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too acid (moderately limited)	0.48	~cutbanks cave (slightly limited)	0.29
							~wetness (moderately limited)	0.33	~depth to bedrock (slightly limited)	0.27
77003: Delassus-----	Moderately limited ~wetness (moderately limited)	0.33	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~small stones (very limited)	1.00	Very limited ~wetness (very limited)	1.00
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~cutbanks cave (very limited)	1.00
							~area reclaim (limited)	0.84	~slope (limited)	0.63
77004: Irondale-----	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00
	~slope (limited)	0.92	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
							~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
77005: Hassler-----	Limited ~depth to bedrock (limited)	0.84	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~wetness (very limited)	1.00
	~wetness (moderately limited)	0.36	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~small stones (limited)	0.99	~slope (very limited)	1.00
	~slope (slightly limited)	0.17	~large stones (bottom layer)	0.34	~large stones (bottom layer)	0.34	~depth to bedrock (moderately limited)	0.38	~depth to bedrock (limited)	0.91
Syenite-----	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00
	~slope (moderately limited)	0.33	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
							~small stones (limited)	0.92	~cutbanks cave (slightly limited)	0.29

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77006: Roselle-----	Not limited		Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Slightly limited ~too acid (slightly limited)	0.24	Slightly limited ~cutbanks cave (slightly limited)	0.29
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00				
77007: Taumsauk-----	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Possible source ~excess fines (thickest layer)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00
	~slope (limited)	0.92	~excess fines (bottom layer)	1.00	~possible source (bottom layer)	0.50	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.12	~small stones (thickest layer)	0.30	~small stones (thickest layer)	0.30	~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Irondale-----	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~hard bedrock <40" (very limited)	1.00
	~slope (limited)	0.92	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.07	~small stones (thickest layer)	0.10	~small stones (thickest layer)	0.10	~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
77008: Hassler-----	Moderately limited ~depth to bedrock (moderately limited)	0.52	Very limited ~excess fines (thickest layer)	1.00	Very limited ~excess fines (bottom layer)	1.00	Moderately limited ~too acid (moderately limited)	0.42	Very limited ~wetness (very limited)	1.00
	~wetness (moderately limited)	0.36	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~wetness (moderately limited)	0.36	~cutbanks cave (very limited)	1.00
			~large stones (bottom layer)	0.30	~large stones (thickest layer)	0.30	~large surface stones (slightly limited)	0.17	~depth to bedrock (limited)	0.69
77009: Trackler-----	Limited ~depth to bedrock (limited)	0.60	Very limited ~excess fines (thickest layer)	1.00	Limited ~excess fines (thickest layer)	1.00	Very limited ~small stones (very limited)	1.00	Very limited ~wetness (very limited)	1.00
	~wetness (moderately limited)	0.33	~excess fines (bottom layer)	1.00	~large stones (thickest layer)	0.66	~area reclaim (very limited)	1.00	~depth to bedrock (limited)	0.79
	~large stones (slightly limited)	0.19	~large stones (bottom layer)	0.66	~large stones (bottom layer)	0.66	~wetness (moderately limited)	0.33	~cutbanks cave (slightly limited)	0.29

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77010:										
Trackler-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (limited)	0.60	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~small stones (very limited)	1.00	~wetness (very limited)	1.00
	~wetness (moderately limited)	0.33	~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~area reclaim (very limited)	1.00	~cutbanks cave (very limited)	1.00
							~too acid (moderately limited)	0.54	~depth to bedrock (limited)	0.79
Irondale-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
			~excess fines (bottom layer)	1.00	~possible source (bottom layer)	0.50	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
							~large surface stones (very limited)	1.00	~slope (moderately limited)	0.37
78250:										
Skrainka-----	Moderately limited		Very limited		Very limited		Very limited		Moderately limited	
	~shrink-swell (moderately limited)	0.41	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~too clayey (moderately limited)	0.59
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00			~cutbanks cave (slightly limited)	0.29
78251:										
Skrainka-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (very limited)	1.00	~slope (limited)	0.63
	~shrink-swell (moderately limited)	0.36	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (limited)	0.63	~too clayey (moderately limited)	0.59
									~cutbanks cave (slightly limited)	0.29
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99006:										
Psamments-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99008:										
Udorthents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Dumps-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 15.--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 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055:										
Alred-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~seepage (moderately limited)	0.50	~large surface stones (limited)	0.79						
			~percs slowly (moderately limited)	0.40	~percs slowly (moderately limited)	0.40	~large stones (slightly limited)	0.00	~droughty (slightly limited)	0.03
Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~seepage (very limited)	1.00	~large stones (very limited)	1.00	~large surface stones (limited)	0.79	~large stones (very limited)	1.00	~large stones (very limited)	1.00
			~large surface stones (limited)	0.79	~droughty (moderately limited)	0.43	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79
73139:										
Poynor-----	Very limited		Very limited		Very limited		Limited		Limited	
	~seepage (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (limited)	0.99	~slope (limited)	0.99
	~slope (limited)	0.99	~large surface stones (slightly limited)	0.17						
Clarksville----	Limited		Very limited		Very limited		Limited		Limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (limited)	0.99	~slope (limited)	0.99
	~seepage (moderately limited)	0.50	~large surface stones (slightly limited)	0.17						
			~large stones (slightly limited)	0.12	~droughty (slightly limited)	0.00			~droughty (slightly limited)	0.00
Scholten-----	Very limited		Very limited		Very limited		Limited		Limited	
	~seepage (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (limited)	0.99	~slope (limited)	0.99
	~slope (limited)	0.99	~percs slowly (very limited)	1.00	~percs slowly (very limited)	1.00	~wetness (limited)	0.78	~rooting depth (limited)	0.80
			~large surface stones (slightly limited)	0.17	~droughty (moderately limited)	0.56	~large surface stones (slightly limited)	0.17	~wetness (limited)	0.78

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73140:										
Clarksville----	Very limited ~slope (very limited) ~seepage (very limited)	1.00	Very limited ~slope (very limited) ~large surface stones (limited)	1.00	Very limited ~slope (very limited) ~large surface stones (limited)	1.00	Very limited ~slope (very limited) ~large surface stones (limited)	1.00	Very limited ~slope (very limited) ~large surface stones (limited)	1.00
Scholten-----	Very limited ~slope (very limited) ~seepage (very limited)	1.00	Very limited ~slope (very limited) ~percs slowly (very limited) ~large surface stones (limited)	1.00	Very limited ~slope (very limited) ~percs slowly (very limited) ~large surface stones (limited)	1.00	Very limited ~slope (very limited) ~large surface stones (limited) ~wetness (slightly limited)	1.00	Very limited ~slope (very limited) ~rooting depth (limited) ~large surface stones (limited)	1.00
73141:										
Firebaugh-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	0.50	Very limited ~large stones (very limited) ~slope (limited) ~percs slowly (moderately limited)	1.00	Limited ~slope (limited) ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.98	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60
73142:										
Firebaugh-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99	Very limited ~slope (very limited) ~percs slowly (moderately limited)	1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited) ~percs slowly (moderately limited)	1.00	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.99	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.99
73143:										
Courtois-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50	Limited ~slope (limited)	0.78	Limited ~slope (limited) ~erodes easily (moderately limited)	0.78	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60
73144:										
Courtois-----	Limited ~slope (limited) ~seepage (moderately limited)	0.89	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00	Limited ~slope (limited) ~erodes easily (moderately limited)	0.89	Limited ~slope (limited) ~erodes easily (moderately limited)	0.89

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73145: Crider-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50  0.20	Limited ~slope (limited)	0.78	Limited ~slope (limited) ~erodes easily (moderately limited)	0.78  0.60	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60  0.20	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60  0.20
73146: Marquand-----	Moderately limited ~slope (moderately limited)	0.30	Limited ~slope (limited) ~percs slowly (slightly limited)	0.98  0.13	Limited ~slope (limited) ~erodes easily (moderately limited) ~percs slowly (slightly limited)	0.98  0.60  0.13	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60  0.37  0.30	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60  0.37  0.30
73147: Fourche-----	Slightly limited ~slope (slightly limited)	0.20	Limited ~slope (limited) ~percs slowly (slightly limited)	0.78  0.13	Limited ~slope (limited) ~erodes easily (moderately limited) ~percs slowly (slightly limited)	0.78  0.60  0.13	Moderately limited ~erodes easily (moderately limited) ~wetness (slightly limited) ~slope (slightly limited)	0.60  0.28  0.20	Moderately limited ~erodes easily (moderately limited) ~wetness (slightly limited) ~slope (slightly limited)	0.60  0.28  0.20
73148: Jonca-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited) ~depth to bedrock (slightly limited)	0.32  0.30  0.25	Limited ~slope (limited) ~percs slowly (moderately limited)	0.98  0.57	Limited ~slope (limited) ~percs slowly (moderately limited)	0.98  0.57	Moderately limited ~slope (moderately limited) ~wetness (slightly limited)	0.30  0.28	Limited ~rooting depth (limited) ~slope (moderately limited) ~wetness (slightly limited)	0.80  0.30  0.28
73149: Caneyville-----	Limited ~depth to bedrock (limited) ~slope (moderately limited)	0.85  0.30	Limited ~slope (limited) ~depth to bedrock (slightly limited) ~percs slowly (slightly limited)	0.98  0.30  0.13	Limited ~slope (limited) ~depth to bedrock (slightly limited) ~percs slowly (slightly limited)	0.98  0.30  0.13	Very limited ~depth to bedrock (very limited) ~slope (moderately limited)	1.00  0.30	Limited ~depth to bedrock (limited) ~slope (moderately limited)	0.85  0.30

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73149:										
Bucklick-----	Limited		Limited		Limited		Moderately limited		Limited	
	~depth to bedrock (limited)	0.63	~slope (limited)	0.98	~slope (limited)	0.98	~depth to bedrock (moderately limited)	0.57	~depth to bedrock (limited)	0.63
	~seepage (moderately limited)	0.50					~slope (moderately limited)	0.30	~slope (moderately limited)	0.30
	~slope (moderately limited)	0.30								
73150:										
Caneyville-----	Limited		Very limited		Very limited		Very limited		Limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (limited)	0.99
	~depth to bedrock (limited)	0.85	~depth to bedrock (slightly limited)	0.30	~depth to bedrock (slightly limited)	0.30	~slope (limited)	0.99	~depth to bedrock (limited)	0.85
			~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13				
Bucklick-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope (limited)	0.99	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (limited)	0.99	~slope (limited)	0.99
	~depth to bedrock (limited)	0.63					~depth to bedrock (moderately limited)	0.57	~depth to bedrock (limited)	0.63
	~seepage (moderately limited)	0.50								
73151:										
Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.84	~depth to bedrock (slightly limited)	0.28	~depth to bedrock (slightly limited)	0.28	~depth to bedrock (very limited)	1.00	~depth to bedrock (limited)	0.84
			~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13				
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~droughty (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
			~large stones (very limited)	1.00	~slope (very limited)	1.00	~large stones (very limited)	1.00	~droughty (very limited)	1.00

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73151: Bucklick-----	Very limited ~slope (very limited) ~depth to bedrock (limited) ~seepage (moderately limited)	1.00  0.62  0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~depth to bedrock (moderately limited)	1.00  0.54	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00  0.62
73152: Lily-----	Very limited ~seepage (very limited) ~depth to bedrock (limited) ~slope (moderately limited)	1.00  0.92  0.30	Limited ~slope (limited) ~depth to bedrock (moderately limited)	0.98  0.60	Limited ~slope (limited) ~depth to bedrock (moderately limited)	0.98  0.60	Very limited ~depth to bedrock (very limited) ~slope (moderately limited)	1.00  0.30	Limited ~depth to bedrock (limited) ~slope (moderately limited)	0.92  0.30
Ramsey-----	Very limited ~bedrock <20 in. (very limited) ~slope (moderately limited)	1.00  0.30	Very limited ~shallow to bedrock (very limited) ~slope (limited) ~large stones (slightly limited)	1.00  0.98  0.06	Very limited ~shallow to bedrock (very limited) ~droughty (limited) ~slope (limited)	1.00  0.98  0.98	Very limited ~depth to bedrock (very limited) ~slope (moderately limited)	1.00  0.30	Very limited ~bedrock <20 in. (very limited) ~droughty (limited) ~slope (moderately limited)	1.00  0.98  0.30
73153: Lily-----	Very limited ~seepage (very limited) ~slope (limited) ~depth to bedrock (limited)	1.00  0.99  0.92	Very limited ~slope (very limited) ~depth to bedrock (moderately limited) ~large stones (slightly limited)	1.00  0.60  0.30	Very limited ~slope (very limited) ~depth to bedrock (moderately limited)	1.00  0.60	Very limited ~depth to bedrock (very limited) ~slope (limited) ~large stones (slightly limited)	1.00  0.99  0.01	Limited ~slope (limited) ~depth to bedrock (limited) ~large stones (slightly limited)	0.99  0.92  0.01
Ramsey-----	Very limited ~bedrock <20 in. (very limited) ~slope (limited)	1.00  0.99	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~large stones (slightly limited)	1.00  1.00  0.06	Very limited ~shallow to bedrock (very limited) ~slope (very limited) ~droughty (limited)	1.00  1.00  0.98	Very limited ~depth to bedrock (very limited) ~slope (limited)	1.00  0.99	Very limited ~bedrock <20 in. (very limited) ~slope (limited) ~droughty (limited)	1.00  0.99  0.98

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73154: Ramsey-----	Very limited ~bedrock <20 in. (very limited) ~slope (very limited)	1.00 1.00	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~large stones (slightly limited)	1.00 1.00 0.06	Very limited ~shallow to bedrock (very limited) ~slope (very limited) ~droughty (limited)	1.00 1.00 0.98	Very limited ~depth to bedrock (very limited) ~slope (very limited)	1.00 1.00	Very limited ~bedrock <20 in. (very limited) ~slope (very limited) ~droughty (limited)	1.00 1.00 0.98
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73155: Gasconade-----	Very limited ~bedrock <20 in. (very limited) ~slope (very limited)	1.00 1.00	Very limited ~shallow to bedrock (very limited) ~slope (very limited) ~large stones (moderately limited)	1.00 1.00 0.51	Very limited ~shallow to bedrock (very limited) ~droughty (very limited) ~slope (very limited)	1.00 1.00 1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~large stones (moderately limited)	1.00 1.00 0.49	Very limited ~bedrock <20 in. (very limited) ~droughty (very limited) ~slope (very limited)	1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73156: Alred-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited) ~percs slowly (moderately limited) ~large surface stones (slightly limited)	1.00 0.39 0.17	Very limited ~slope (very limited) ~percs slowly (moderately limited) ~large surface stones (slightly limited)	1.00 0.39 0.17	Limited ~slope (limited) ~large surface stones (slightly limited)	0.99 0.17	Limited ~slope (limited) ~large surface stones (slightly limited)	0.99 0.17
Gepp-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited) ~large surface stones (slightly limited)	1.00 0.17	Very limited ~slope (very limited) ~large surface stones (slightly limited) ~droughty (slightly limited)	1.00 0.17 0.01	Limited ~slope (limited) ~large surface stones (slightly limited)	0.99 0.17	Limited ~slope (limited) ~large surface stones (slightly limited) ~droughty (slightly limited)	0.99 0.17 0.01
73157: Captina-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	0.50 0.30	Limited ~slope (limited) ~percs slowly (moderately limited)	0.98 0.39	Limited ~slope (limited) ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.98 0.60 0.39	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60 0.36 0.30	Limited ~rooting depth (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.80 0.60 0.36

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74644: Deible-----	Not limited		Very limited ~percs slowly (very limited)	1.00	Very limited ~percs slowly (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00 0.60
74645: Higdon-----	Moderately limited ~seepage (moderately limited)	0.50	Slightly limited ~percs slowly (slightly limited)	0.13	Moderately limited ~erodes easily (moderately limited) ~percs slowly (slightly limited)	0.60 0.13	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.60
74646: Cornwall-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	0.50 0.30	Limited ~slope (limited) ~percs slowly (moderately limited)	0.98 0.39	Limited ~slope (limited) ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.98 0.60 0.39	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60 0.36 0.30	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60 0.36 0.30
74647: Cornwall-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited) ~percs slowly (moderately limited)	1.00 0.39	Very limited ~slope (very limited) ~erodes easily (moderately limited) ~percs slowly (moderately limited)	1.00 0.60 0.39	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.99 0.60 0.36	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.99 0.60 0.36
74648: Aslinger-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.32 0.10	Moderately limited ~slope (moderately limited) ~percs slowly (slightly limited)	0.40 0.26	Moderately limited ~slope (moderately limited) ~percs slowly (slightly limited)	0.40 0.26	Moderately limited ~wetness (moderately limited) ~slope (slightly limited)	0.44 0.10	Moderately limited ~wetness (moderately limited) ~slope (slightly limited)	0.44 0.10
74649: Aslinger-----	Limited ~slope (limited) ~seepage (moderately limited)	0.70 0.50	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.13	Very limited ~slope (very limited) ~erodes easily (moderately limited) ~percs slowly (slightly limited)	1.00 0.60 0.13	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.70 0.60 0.44	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.70 0.60 0.44

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74649: Waben-----	Very limited ~seepage (very limited) ~slope (slightly limited)	1.00  0.20	Limited ~slope (limited) ~large stones (moderately limited)	0.78  0.51	Limited ~slope (limited) ~droughty (slightly limited) ~large stones (slightly limited)	0.78  0.00 0.00	Very limited ~large stones (very limited) ~slope (slightly limited)	1.00  0.20	Very limited ~large stones (very limited) ~slope (slightly limited) ~droughty (slightly limited)	1.00  0.20 0.00
74650: Higdon-----	Not limited		Moderately limited ~flooding (moderately limited) ~percs slowly (slightly limited)	0.60  0.15	Moderately limited ~flooding (moderately limited) ~erodes easily (moderately limited) ~percs slowly (slightly limited)	0.60  0.60 0.15	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60  0.53	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60  0.53
74684: Racoon-----	Not limited		Slightly limited ~percs slowly (slightly limited)	0.13	Moderately limited ~erodes easily (moderately limited) ~percs slowly (slightly limited)	0.60  0.13	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00  0.60	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00  0.60
75381: Bearthicket---	Moderately limited ~seepage (moderately limited)	0.50	Not limited		Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60
75395: Jamesfin-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited) ~erodes easily (moderately limited)	0.60  0.60	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60
75408: Secesh-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~large stones (moderately limited)	0.51	Not limited		Slightly limited ~large stones (slightly limited)	0.16	Slightly limited ~large stones (slightly limited)	0.16
75409: Relfe-----	Very limited ~seepage (very limited)	1.00	Moderately limited ~flooding (moderately limited)	0.60	Limited ~droughty (limited) ~flooding (moderately limited)	0.84  0.60	Very limited ~too sandy (very limited)	1.00	Limited ~droughty (limited)	0.84

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75410: Relfe-----	Very limited ~seepage (very limited)	1.00	Limited ~flooding (limited)	0.90	Limited ~droughty (limited) ~flooding (limited)	0.96  0.90	Very limited ~too sandy (very limited)	1.00	Limited ~droughty (limited)	0.96
75411: Tilk-----	Very limited ~seepage (very limited)	1.00	Moderately limited ~large stones (moderately limited)	0.51	Slightly limited ~droughty (slightly limited)	0.04	Limited ~large stones (limited)	0.90	Limited ~large stones (limited) ~droughty (slightly limited)	0.90  0.04
75416: Gladden-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited) ~flooding (moderately limited)	0.90  0.60	Moderately limited ~flooding (moderately limited) ~erodes easily (moderately limited)	0.60  0.60	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60
77000: Killarney-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~large surface stones (very limited) ~percs slowly (very limited)	1.00  1.00  1.00	Very limited ~slope (very limited) ~large surface stones (very limited) ~percs slowly (very limited)	1.00  1.00  1.00	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (very limited)	1.00  1.00  1.00	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (very limited)	1.00  1.00  1.00
Frenchmill-----	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00  0.50	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (limited)	1.00  1.00  0.79	Very limited ~slope (very limited) ~large surface stones (very limited)	1.00  1.00	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (limited)	1.00  1.00  0.93	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (limited)	1.00  1.00  0.93
77001: Loughboro-----	Not limited		Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.60  0.39	Limited ~wetness (limited) ~erodes easily (moderately limited)	0.81  0.60	Limited ~wetness (limited) ~erodes easily (moderately limited)	0.81  0.60

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77002: Delassus-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited) ~depth to bedrock (slightly limited)	0.50 0.30 0.27	Very limited ~percs slowly (very limited) ~slope (limited)	1.00 0.98	Very limited ~percs slowly (very limited) ~slope (limited) ~erodes easily (moderately limited)	1.00 0.98 0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60 0.39 0.30	Limited ~rooting depth (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	0.80 0.60 0.39
77003: Delassus-----	Limited ~slope (limited) ~seepage (moderately limited) ~depth to bedrock (slightly limited)	0.99 0.50 0.27	Very limited ~slope (very limited) ~percs slowly (very limited) ~large surface stones (limited)	1.00 1.00 0.70	Very limited ~slope (very limited) ~percs slowly (very limited) ~large surface stones (limited)	1.00 1.00 0.70	Limited ~slope (limited) ~large surface stones (limited) ~wetness (moderately limited)	0.99 0.70 0.39	Limited ~slope (limited) ~rooting depth (limited) ~large surface stones (limited)	0.99 0.80 0.70
77004: Irondale-----	Very limited ~slope (very limited) ~depth to bedrock (limited) ~seepage (moderately limited)	1.00 0.97 0.50	Very limited ~slope (very limited) ~large surface stones (very limited) ~depth to bedrock (limited)	1.00 1.00 0.86	Very limited ~slope (very limited) ~large surface stones (very limited) ~depth to bedrock (limited)	1.00 1.00 0.86	Very limited ~slope (very limited) ~depth to bedrock (very limited) ~large surface stones (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~large surface stones (very limited) ~depth to bedrock (limited)	1.00 1.00 0.97
77005: Hassler-----	Very limited ~slope (very limited) ~depth to bedrock (limited) ~seepage (moderately limited)	1.00 0.69 0.50	Very limited ~slope (very limited) ~large stones (very limited) ~percs slowly (slightly limited)	1.00 1.00 0.17	Very limited ~slope (very limited) ~percs slowly (slightly limited) ~large surface stones (slightly limited)	1.00 0.17 0.17	Very limited ~slope (very limited) ~large stones (very limited) ~depth to bedrock (limited)	1.00 1.00 0.84	Very limited ~slope (very limited) ~large stones (very limited) ~depth to bedrock (limited)	1.00 1.00 0.69
Syenite-----	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00 0.86	Very limited ~slope (very limited) ~large stones (moderately limited) ~depth to bedrock (moderately limited)	1.00 0.51 0.35	Very limited ~slope (very limited) ~depth to bedrock (moderately limited) ~percs slowly (slightly limited)	1.00 0.35 0.17	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~large stones (moderately limited)	1.00 1.00 0.45	Very limited ~slope (very limited) ~depth to bedrock (limited) ~large stones (moderately limited)	1.00 0.86 0.45

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77006: Roselle-----	Very limited ~seepage (very limited) ~slope (moderately limited)	1.00  0.30	Limited ~slope (limited)	0.98	Limited ~slope (limited) ~erodes easily (moderately limited)	0.98  0.60	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited)	0.60  0.30	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited)	0.60  0.30
77007: Taumsauk-----	Very limited ~bedrock <20 in. (very limited) ~slope (very limited)	1.00  1.00	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~large surface stones (very limited)	1.00  1.00 1.00	Very limited ~shallow to bedrock (very limited) ~slope (very limited) ~large surface stones (very limited)	1.00  1.00 1.00	Very limited ~slope (very limited) ~depth to bedrock (very limited) ~large surface stones (very limited)	1.00  1.00 1.00	Very limited ~bedrock <20 in. (very limited) ~slope (very limited) ~large surface stones (very limited)	1.00  1.00 1.00
Irondale-----	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00  0.97	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (limited)	1.00  1.00 0.99	Very limited ~slope (very limited) ~large surface stones (very limited) ~depth to bedrock (limited)	1.00  1.00 0.86	Very limited ~slope (very limited) ~depth to bedrock (very limited) ~large surface stones (very limited)	1.00  1.00 1.00	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (very limited)	1.00  1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
77008: Hassler-----	Limited ~depth to bedrock (limited) ~slope (moderately limited) ~seepage (moderately limited)	0.61  0.60 0.50	Very limited ~slope (very limited) ~percs slowly (slightly limited) ~large surface stones (slightly limited)	1.00  0.17 0.17	Very limited ~slope (very limited) ~percs slowly (slightly limited) ~large surface stones (slightly limited)	1.00  0.17 0.17	Limited ~large stones (limited) ~slope (moderately limited) ~depth to bedrock (moderately limited)	0.85  0.60 0.52	Limited ~large stones (limited) ~depth to bedrock (limited) ~slope (moderately limited)	0.85  0.61 0.60
77009: Trackler-----	Limited ~depth to bedrock (limited) ~slope (moderately limited)	0.64  0.30	Limited ~slope (limited) ~large stones (moderately limited) ~percs slowly (slightly limited)	0.98  0.51 0.13	Limited ~slope (limited) ~erodes easily (moderately limited) ~large stones (slightly limited)	0.98  0.60 0.19	Very limited ~large stones (very limited) ~depth to bedrock (limited) ~erodes easily (moderately limited)	1.00  0.60 0.60	Very limited ~large stones (very limited) ~depth to bedrock (limited) ~erodes easily (moderately limited)	1.00  0.64 0.60

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77010:										
Trackler-----	Limited ~slope (limited) ~depth to bedrock (limited)	0.89  0.64	Very limited ~slope (very limited) ~large stones (moderately limited) ~percs slowly (slightly limited)	1.00  0.51 0.13	Very limited ~slope (very limited) ~erodes easily (moderately limited) ~percs slowly (slightly limited)	1.00  0.60 0.13	Limited ~slope (limited) ~depth to bedrock (limited) ~erodes easily (moderately limited)	0.89  0.60 0.60	Limited ~slope (limited) ~depth to bedrock (limited) ~erodes easily (moderately limited)	0.89  0.64 0.60
Irondale-----	Limited ~depth to bedrock (limited) ~slope (limited) ~seepage (moderately limited)	0.97  0.89 0.50	Very limited ~slope (very limited) ~large surface stones (very limited) ~depth to bedrock (limited)	1.00  1.00 0.86	Very limited ~slope (very limited) ~large surface stones (very limited) ~depth to bedrock (limited)	1.00  1.00 0.86	Very limited ~depth to bedrock (very limited) ~large surface stones (very limited) ~slope (limited)	1.00  1.00 0.89	Very limited ~large surface stones (very limited) ~depth to bedrock (limited) ~slope (limited)	1.00  0.97 0.89
78250:										
Skrainka-----	Very limited ~seepage (very limited) ~slope (moderately limited)	1.00  0.30	Limited ~slope (limited) ~percs slowly (slightly limited)	0.98  0.17	Limited ~slope (limited) ~erodes easily (moderately limited) ~percs slowly (slightly limited)	0.98  0.60 0.17	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited)	0.60  0.30	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited)	0.60  0.30
78251:										
Skrainka-----	Very limited ~seepage (very limited) ~slope (limited)	1.00  0.99	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00  0.18	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00  0.18	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99006:										
Psamments-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99008:										
Udorthents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Dumps-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 16.--Waste 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 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73055:										
Alred-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~percs slowly (very limited)	1.00
	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79	~slope (very limited)	1.00
	~droughty (slightly limited)	0.03	~droughty (slightly limited)	0.03	~droughty (slightly limited)	0.03	~droughty (slightly limited)	0.03	~large surface stones (limited)	0.79
Rueter-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~too acid (limited)	0.84	~too acid (limited)	0.84	~too acid (limited)	0.84	~too acid (limited)	0.84	~too cobbly (limited)	0.95
	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79	~large surface stones (limited)	0.79
73139:										
Poynor-----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99	Very limited ~slope (very limited)	1.00
	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~percs slowly (moderately limited)	0.32
	~too acid (slightly limited)	0.06	~too acid (slightly limited)	0.06	~too acid (slightly limited)	0.06	~too acid (slightly limited)	0.06	~large surface stones (slightly limited)	0.17
Clarksville----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99	Very limited ~percs slowly (very limited)	1.00
	~too acid (slightly limited)	0.30	~too acid (slightly limited)	0.30	~too acid (slightly limited)	0.30	~too acid (slightly limited)	0.30	~slope (very limited)	1.00
	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17
Scholten-----	Limited ~wetness (limited)	0.78	Limited ~wetness (limited)	0.78	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99	Very limited ~percs slowly (very limited)	1.00
	~too acid (limited)	0.76	~too acid (limited)	0.76	~wetness (limited)	0.78	~wetness (limited)	0.78	~slope (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~too acid (limited)	0.76	~too acid (limited)	0.76	~wetness (very limited)	1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value						
73140: Clarksville----	Very limited ~slope (very limited) ~large surface stones (limited) ~too acid (limited)	1.00 0.70 0.68	Very limited ~slope (very limited) ~large surface stones (limited) ~too acid (limited)	1.00 0.70 0.68	Very limited ~slope (very limited) ~large surface stones (limited) ~too acid (limited)	1.00 0.70 0.68	Very limited ~slope (very limited) ~large surface stones (limited) ~too acid (limited)	1.00 0.70 0.68	Very limited ~percs slowly (very limited) ~slope (very limited) ~large surface stones (limited)	1.00 1.00 0.70
Scholten-----	Very limited ~slope (very limited) ~large surface stones (limited) ~too acid (moderately limited)	1.00 0.70 0.42	Very limited ~slope (very limited) ~large surface stones (limited) ~too acid (moderately limited)	1.00 0.70 0.42	Very limited ~slope (very limited) ~large surface stones (limited) ~too acid (moderately limited)	1.00 0.70 0.42	Very limited ~slope (very limited) ~large surface stones (limited) ~too acid (moderately limited)	1.00 0.70 0.42	Very limited ~percs slowly (very limited) ~slope (very limited) ~wetness (very limited)	1.00 1.00 1.00
73141: Firebaugh-----	Limited ~percs slowly (limited) ~wetness (moderately limited) ~too acid (moderately limited)	0.99 0.50 0.42	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00 1.00 0.91						
73142: Firebaugh-----	Limited ~percs slowly (limited) ~slope (limited) ~too acid (limited)	0.99 0.76 0.60	Limited ~percs slowly (limited) ~slope (limited) ~too acid (limited)	0.99 0.76 0.60	Limited ~slope (limited) ~percs slowly (limited) ~too acid (limited)	0.99 0.99 0.60	Limited ~slope (limited) ~percs slowly (limited) ~too acid (limited)	0.99 0.99 0.60	Very limited ~percs slowly (very limited) ~slope (very limited) ~wetness (very limited)	1.00 1.00 1.00
73143: Courtois-----	Not limited		Not limited		Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20	Very limited ~percs slowly (very limited) ~slope (limited)	1.00 0.66

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73144: Courtois-----	Limited ~slope (limited)	0.68	Limited ~slope (limited)	0.68	Limited ~slope (limited)	0.89	Limited ~slope (limited)	0.89	Very limited ~percs slowly (very limited) ~slope (very limited)	1.00  1.00
73145: Crider-----	Not limited		Not limited		Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20	Very limited ~percs slowly (very limited) ~slope (limited)	1.00  0.66
73146: Marquand-----	Limited ~percs slowly (limited) ~wetness (moderately limited)	0.60  0.37	Limited ~percs slowly (limited) ~wetness (moderately limited)	0.60  0.37	Limited ~percs slowly (limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60  0.37  0.30	Limited ~percs slowly (limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60  0.37  0.30	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00  1.00  0.91
73147: Fourche-----	Limited ~percs slowly (limited) ~wetness (slightly limited)	0.60  0.28	Limited ~percs slowly (limited) ~wetness (slightly limited)	0.60  0.28	Limited ~percs slowly (limited) ~wetness (slightly limited) ~slope (slightly limited)	0.60  0.28  0.20	Limited ~percs slowly (limited) ~wetness (slightly limited) ~slope (slightly limited)	0.60  0.28  0.20	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00  1.00  0.66
73148: Jonca-----	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited)	0.54  0.28	Moderately limited ~too acid (moderately limited) ~wetness (slightly limited)	0.54  0.28	Moderately limited ~too acid (moderately limited) ~slope (moderately limited) ~wetness (slightly limited)	0.54  0.30  0.28	Moderately limited ~too acid (moderately limited) ~slope (moderately limited) ~wetness (slightly limited)	0.54  0.30  0.28	Very limited ~percs slowly (very limited) ~depth to bedrock (very limited) ~wetness (very limited)	1.00  1.00  1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73149: Caneyville-----	Limited ~percs slowly (limited) ~depth to bedrock (slightly limited)	0.60  0.30	Limited ~percs slowly (limited) ~depth to bedrock (slightly limited)	0.60  0.30	Limited ~percs slowly (limited) ~slope (moderately limited) ~depth to bedrock (slightly limited)	0.60  0.30  0.30	Very limited ~depth to bedrock (very limited) ~percs slowly (limited) ~slope (moderately limited)	1.00  0.60  0.30	Very limited ~percs slowly (very limited) ~depth to bedrock (very limited) ~slope (limited)	1.00  1.00  0.91
Bucklick-----	Not limited		Not limited		Moderately limited ~slope (moderately limited)	0.30	Moderately limited ~depth to bedrock (moderately limited) ~slope (moderately limited)	0.57  0.30	Very limited ~percs slowly (very limited) ~depth to bedrock (very limited) ~slope (limited)	1.00  1.00  0.91
73150: Caneyville-----	Limited ~slope (limited) ~percs slowly (limited) ~depth to bedrock (slightly limited)	0.76  0.60  0.30	Limited ~slope (limited) ~percs slowly (limited) ~depth to bedrock (slightly limited)	0.76  0.60  0.30	Limited ~slope (limited) ~percs slowly (limited) ~depth to bedrock (slightly limited)	0.99  0.60  0.30	Very limited ~depth to bedrock (very limited) ~slope (limited) ~percs slowly (limited)	1.00  0.99  0.60	Very limited ~percs slowly (very limited) ~slope (very limited) ~depth to bedrock (very limited)	1.00  1.00  1.00
Bucklick-----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.99	Limited ~slope (limited) ~depth to bedrock (moderately limited)	0.99  0.57	Very limited ~percs slowly (very limited) ~slope (very limited) ~depth to bedrock (very limited)	1.00  1.00  1.00
73151: Caneyville-----	Very limited ~slope (very limited) ~percs slowly (limited) ~depth to bedrock (slightly limited)	1.00  0.60  0.28	Very limited ~slope (very limited) ~percs slowly (limited) ~depth to bedrock (slightly limited)	1.00  0.60  0.28	Very limited ~slope (very limited) ~percs slowly (limited) ~depth to bedrock (slightly limited)	1.00  0.60  0.28	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~percs slowly (limited)	1.00  1.00  0.60	Very limited ~percs slowly (very limited) ~slope (very limited) ~depth to bedrock (very limited)	1.00  1.00  1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73151:										
Gasconade-----	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~droughty (very limited)	1.00	Very limited ~droughty (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~large stones (limited)	0.76	~depth to bedrock (very limited)	1.00
Bucklick-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~percs slowly (very limited)	1.00
							~depth to bedrock (moderately limited)	0.54	~slope (very limited)	1.00
									~depth to bedrock (very limited)	1.00
73152:										
Lily-----	Moderately limited ~depth to bedrock (moderately limited)	0.60	Moderately limited ~depth to bedrock (moderately limited)	0.60	Moderately limited ~depth to bedrock (moderately limited)	0.60	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00
	~too acid (slightly limited)	0.18	~too acid (slightly limited)	0.18	~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~slope (limited)	0.91
					~too acid (slightly limited)	0.18	~too acid (slightly limited)	0.18	~percs slowly (limited)	0.62
Ramsey-----	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00
	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~slope (limited)	0.91
	~droughty (limited)	0.98	~droughty (limited)	0.98	~droughty (limited)	0.98	~too acid (moderately limited)	0.48	~too acid (slightly limited)	0.14
73153:										
Lily-----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.99	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~depth to bedrock (moderately limited)	0.60	~depth to bedrock (moderately limited)	0.60	~depth to bedrock (moderately limited)	0.60	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00
	~too acid (moderately limited)	0.36	~too acid (moderately limited)	0.36	~too acid (moderately limited)	0.36	~too acid (moderately limited)	0.36	~percs slowly (moderately limited)	0.32

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73153: Ramsey-----	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~droughty (limited)	0.98	~droughty (limited)	0.98	~slope (limited)	0.99	~slope (limited)	0.99	~too acid (slightly limited)	0.14
73154: Ramsey-----	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~slope (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~too acid (slightly limited)	0.14
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73155: Gasconade-----	Very limited ~shallow to bedrock (very limited)	1.00	Very limited ~droughty (very limited)	1.00	Very limited ~droughty (very limited)	1.00	Very limited ~depth to bedrock (very limited)	1.00	Very limited ~percs slowly (very limited)	1.00
	~droughty (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~shallow to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (limited)	0.60	~slope (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73156: Alred-----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99	Very limited ~percs slowly (very limited)	1.00
	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~large surface stones (slightly limited)	0.17	~slope (very limited)	1.00
	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~too acid (slightly limited)	0.12	~large surface stones (slightly limited)	0.17

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73156: Gepp-----	Limited ~slope (limited) ~too acid (limited) ~large surface stones (slightly limited)	0.76  0.60  0.17	Limited ~slope (limited) ~too acid (limited) ~large surface stones (slightly limited)	0.76  0.60  0.17	Limited ~slope (limited) ~too acid (limited) ~large surface stones (slightly limited)	0.99  0.60  0.17	Limited ~slope (limited) ~too acid (limited) ~large surface stones (slightly limited)	0.99  0.60  0.17	Very limited ~percs slowly (very limited) ~slope (very limited) ~too acid (slightly limited)	1.00  1.00  0.21
73157: Captina-----	Moderately limited ~wetness (moderately limited)	0.36	Moderately limited ~wetness (moderately limited)	0.36	Moderately limited ~wetness (moderately limited) ~slope (moderately limited)	0.36  0.30	Moderately limited ~wetness (moderately limited) ~slope (moderately limited)	0.36  0.30	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00  1.00  0.91
74644: Deible-----	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~percs slowly (very limited) ~wetness (very limited)	1.00  1.00
74645: Higdon-----	Moderately limited ~wetness (moderately limited)	0.60	Moderately limited ~wetness (moderately limited)	0.60	Moderately limited ~wetness (moderately limited)	0.60	Moderately limited ~wetness (moderately limited)	0.60	Very limited ~percs slowly (very limited) ~wetness (very limited)	1.00  1.00
74646: Cornwall-----	Limited ~percs slowly (limited) ~wetness (moderately limited)	0.99  0.36	Limited ~percs slowly (limited) ~wetness (moderately limited)	0.99  0.36	Limited ~percs slowly (limited) ~wetness (moderately limited) ~slope (moderately limited)	0.99  0.36  0.30	Limited ~percs slowly (limited) ~wetness (moderately limited) ~slope (moderately limited)	0.99  0.36  0.30	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (limited)	1.00  1.00  0.91

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value						
74647: Cornwall-----	Limited ~percs slowly (limited) ~slope (limited) ~wetness (moderately limited)	 0.99  0.76  0.36	Limited ~percs slowly (limited) ~slope (limited) ~wetness (moderately limited)	 0.99  0.76  0.36	Limited ~slope (limited) ~percs slowly (limited) ~wetness (moderately limited)	 0.99  0.99  0.36	Limited ~slope (limited) ~percs slowly (limited) ~wetness (moderately limited)	 0.99  0.99  0.36	Very limited ~percs slowly (very limited) ~slope (very limited) ~wetness (very limited)	 1.00  1.00  1.00
74648: Aslinger-----	Limited ~percs slowly (limited) ~wetness (moderately limited) ~too acid (slightly limited)	 0.60  0.44  0.18	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (moderately limited)	 1.00  1.00  0.31						
74649: Aslinger-----	Limited ~percs slowly (limited) ~too acid (limited) ~slope (moderately limited)	 0.60  0.60  0.45	Limited ~percs slowly (limited) ~too acid (limited) ~slope (moderately limited)	 0.60  0.60  0.45	Limited ~slope (limited) ~percs slowly (limited) ~too acid (limited)	 0.70  0.60  0.60	Limited ~slope (limited) ~percs slowly (limited) ~too acid (limited)	 0.70  0.60  0.60	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (very limited)	 1.00  1.00  1.00
Waben-----	Not limited ~droughty (slightly limited)	 0.00	Slightly limited ~droughty (slightly limited)	 0.00	Slightly limited ~slope (slightly limited) ~droughty (slightly limited)	 0.20  0.00	Slightly limited ~slope (slightly limited)	 0.20	Limited ~slope (limited) ~percs slowly (moderately limited) ~too cobbly (slightly limited)	 0.66  0.32  0.00
74650: Higdon-----	Limited ~flooding (limited) ~wetness (moderately limited) ~too acid (moderately limited)	 0.90  0.53  0.36	Very limited ~percs slowly (very limited) ~wetness (very limited) ~flooding (moderately limited)	 1.00  1.00  0.60						

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value						
74684: Racoon-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~flooding (slightly limited)	1.00  0.60  0.30	Very limited ~percs slowly (very limited) ~wetness (very limited)	1.00  1.00						
75381: Bearthicket----	Slightly limited ~flooding (slightly limited)	0.30	Very limited ~percs slowly (very limited)	1.00						
75395: Jamesfin-----	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Very limited ~percs slowly (very limited) ~wetness (limited) ~flooding (moderately limited)	1.00  0.60  0.60
75408: Secesh-----	Slightly limited ~flooding (slightly limited)	0.30	Very limited ~percs slowly (very limited)	1.00						
75409: Relfe-----	Very limited ~poor filter (very limited) ~flooding (limited) ~droughty (limited)	1.00  0.90  0.84	Very limited ~poor filter (very limited) ~flooding (limited) ~droughty (limited)	1.00  0.90  0.84	Very limited ~poor filter (very limited) ~flooding (limited) ~droughty (limited)	1.00  0.90  0.84	Very limited ~poor filter (very limited) ~flooding (limited)	1.00  0.90	Limited ~flooding (moderately limited)	0.60
75410: Relfe-----	Very limited ~flooding (very limited) ~poor filter (very limited) ~droughty (limited)	1.00  1.00  0.96	Very limited ~flooding (very limited) ~poor filter (very limited) ~droughty (limited)	1.00  1.00  0.96	Very limited ~flooding (very limited) ~poor filter (very limited) ~droughty (limited)	1.00  1.00  0.96	Very limited ~flooding (very limited) ~poor filter (very limited)	1.00  1.00	Very limited ~flooding (very limited)	1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75411:										
Tilk-----	Slightly limited		Slightly limited		Slightly limited		Slightly limited		Slightly limited	
	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~flooding (slightly limited)	0.30	~percs slowly (moderately limited)	0.32
	~too acid (slightly limited)	0.18	~too acid (slightly limited)	0.18	~too acid (slightly limited)	0.18	~too acid (slightly limited)	0.18	~too acid (slightly limited)	0.01
	~droughty (slightly limited)	0.04	~droughty (slightly limited)	0.04	~droughty (slightly limited)	0.04				
75416:										
Gladden-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~poor filter (very limited)	1.00	~percs slowly (very limited)	1.00
	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (limited)	0.90	~flooding (moderately limited)	0.60
77000:										
Killarney-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (slightly limited)	0.28	~wetness (very limited)	1.00
Frenchmill-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~large stones (moderately limited)	0.33	~large stones (moderately limited)	0.33	~large stones (moderately limited)	0.33	~large stones (moderately limited)	0.33	~large surface stones (very limited)	1.00
77001:										
Loughboro-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (limited)	0.99	~percs slowly (very limited)	1.00
	~wetness (limited)	0.81	~wetness (limited)	0.81	~wetness (limited)	0.81	~wetness (limited)	0.81	~wetness (very limited)	1.00
									~too acid (moderately limited)	0.55

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77002: Delassus-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness (moderately limited)	0.39	~wetness (moderately limited)	0.39	~wetness (moderately limited)	0.39	~wetness (moderately limited)	0.39	~percs slowly (very limited)	1.00
	~too acid (slightly limited)	0.18	~too acid (slightly limited)	0.18	~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~depth to bedrock (very limited)	1.00
					~too acid (slightly limited)	0.18	~too acid (slightly limited)	0.18	~wetness (very limited)	1.00
77003: Delassus-----	Limited		Limited		Limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~slope (limited)	0.99	~percs slowly (very limited)	1.00
	~large stones (limited)	0.70	~large stones (limited)	0.70	~large stones (limited)	0.70	~large stones (limited)	0.70	~slope (very limited)	1.00
	~large surface stones (limited)	0.70	~large surface stones (limited)	0.70	~large surface stones (limited)	0.70	~large surface stones (limited)	0.70	~depth to bedrock (very limited)	1.00
77004: Irondale-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~depth to bedrock (limited)	0.86	~depth to bedrock (limited)	0.86	~depth to bedrock (limited)	0.86	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00
77005: Hassler-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~depth to bedrock (limited)	0.84	~slope (very limited)	1.00
	~wetness (moderately limited)	0.40	~wetness (moderately limited)	0.40	~wetness (moderately limited)	0.40	~percs slowly (limited)	0.60	~depth to bedrock (very limited)	1.00
Syenite-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~slope (very limited)	1.00	~slope (very limited)	1.00
	~too acid (moderately limited)	0.48	~too acid (moderately limited)	0.48	~too acid (moderately limited)	0.48	~percs slowly (limited)	0.60	~depth to bedrock (very limited)	1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77006: Roselle-----	Very limited ~percs slowly (very limited)	1.00	Very limited ~percs slowly (very limited)	1.00	Very limited ~percs slowly (very limited) ~slope (moderately limited)	1.00 0.30	Very limited ~percs slowly (very limited) ~slope (moderately limited)	1.00 0.30	Very limited ~percs slowly (very limited) ~slope (limited) ~too acid (slightly limited)	1.00 0.91 0.03
77007: Taumsauk-----	Very limited ~shallow to bedrock (very limited) ~slope (very limited) ~large surface stones (very limited)	1.00 1.00 1.00	Very limited ~shallow to bedrock (very limited) ~large surface stones (very limited) ~slope (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~shallow to bedrock (very limited) ~large surface stones (very limited)	1.00 1.00 1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~large surface stones (very limited)	1.00 1.00 1.00	Very limited ~percs slowly (very limited) ~slope (very limited) ~depth to bedrock (very limited)	1.00 1.00 1.00
Irondale-----	Very limited ~slope (very limited) ~large surface stones (very limited) ~depth to bedrock (limited)	1.00 1.00 0.86	Very limited ~large surface stones (very limited) ~slope (very limited) ~depth to bedrock (limited)	1.00 1.00 0.86	Very limited ~slope (very limited) ~large surface stones (very limited) ~depth to bedrock (limited)	1.00 1.00 0.86	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~large surface stones (very limited)	1.00 1.00 1.00	Very limited ~percs slowly (very limited) ~slope (very limited) ~depth to bedrock (very limited)	1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
77008: Hassler-----	Limited ~percs slowly (limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60 0.40 0.30	Limited ~percs slowly (limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60 0.40 0.30	Limited ~percs slowly (limited) ~slope (moderately limited) ~wetness (moderately limited)	0.60 0.60 0.40	Limited ~percs slowly (limited) ~slope (moderately limited) ~depth to bedrock (moderately limited)	0.60 0.60 0.52	Very limited ~percs slowly (very limited) ~depth to bedrock (very limited) ~wetness (very limited)	1.00 1.00 1.00
77009: Trackler-----	Limited ~percs slowly (limited) ~wetness (moderately limited)	0.60 0.39	Limited ~percs slowly (limited) ~wetness (moderately limited)	0.60 0.39	Limited ~percs slowly (limited) ~wetness (moderately limited) ~slope (moderately limited)	0.60 0.39 0.30	Limited ~percs slowly (limited) ~depth to bedrock (limited) ~wetness (moderately limited)	0.60 0.60 0.39	Very limited ~too stony (very limited) ~percs slowly (very limited) ~depth to bedrock (very limited)	1.00 1.00 1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
77010:										
Trackler-----	Limited		Limited		Limited		Limited		Very limited	
	~slope (limited)	0.68	~slope (limited)	0.68	~slope (limited)	0.89	~slope (limited)	0.89	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~slope (very limited)	1.00
	~wetness (moderately limited)	0.39	~wetness (moderately limited)	0.39	~wetness (moderately limited)	0.39	~depth to bedrock (limited)	0.60	~depth to bedrock (very limited)	1.00
Irondale-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~depth to bedrock (limited)	0.86	~depth to bedrock (limited)	0.86	~slope (limited)	0.89	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~slope (limited)	0.68	~slope (limited)	0.68	~depth to bedrock (limited)	0.86	~slope (limited)	0.89	~depth to bedrock (very limited)	1.00
78250:										
Skrainka-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (very limited)	1.00
					~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~slope (limited)	0.91
78251:										
Skrainka-----	Limited		Limited		Limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~slope (limited)	0.99	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~slope (very limited)	1.00
	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24		
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99006:										
Psammets-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99008:										
Udorthents-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Dumps-----	Not rated		Not rated		Not rated		Not rated		Not rated	



# Soil Properties

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

## Engineering Index Properties

Table 17 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

*Depth* to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

*Texture* is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 13). "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 about 15

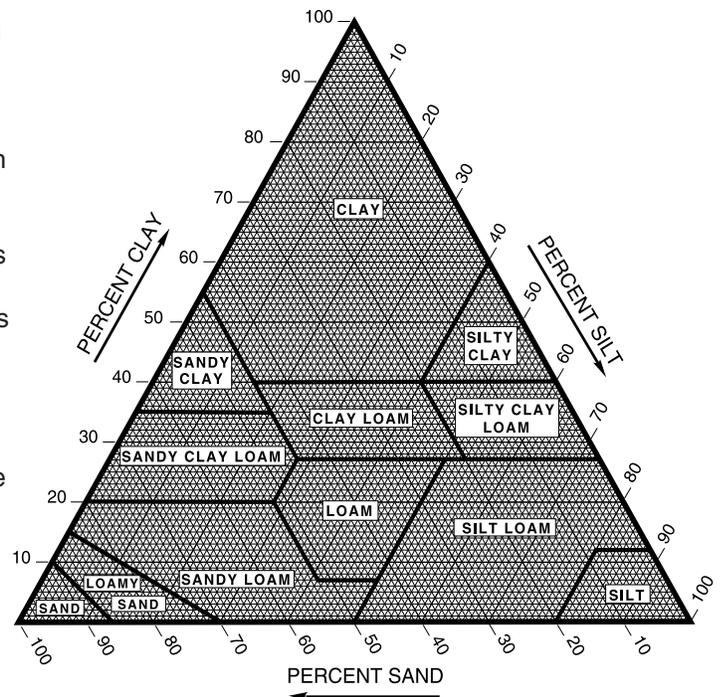


Figure 13.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

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, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of 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

Table 18 shows estimates of some physical and chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

*Sand* as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

*Silt* as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

*Clay* as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $1/3$ - or  $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Saturated hydraulic conductivity* 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

micrometers per second (um/sec), when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

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

*Cation-exchange capacity* is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

*Effective cation-exchange capacity* refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

*Soil reaction* is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

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

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the

linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

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

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

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

*Erosion factor  $K_w$*  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. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

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

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

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

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

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

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

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

## Water Features

Table 19 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water

or soils of moderately fine texture or fine texture.

These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to two hydrologic groups in the table, the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

*Water table* refers to a saturated zone in the soil. Table 19 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

*Flooding*, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

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

## Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, fragipans, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

*Potential frost action* is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture,

density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that dissolves 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 in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel 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 is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Table 17.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO	>10	3-10	sieve number--					
					inches	inches	4	10	40	200		
73055: Alred-----	0-7	GRV-L	GC-GM, GC, GM	A-1, A-1-b, A-2	0-5	0-20	35-50	30-45	25-40	20-30	15-30	2-15
	7-15	GRV-L	GC-GM, GC	A-2-4, A-2, A-1	0-5	0-20	30-50	25-45	25-40	20-30	20-30	5-15
	15-21	GRV-L, GRX-SICL	GC-GM, GC	A-2-6, A-2, A-6	0-5	0-20	25-65	20-50	20-50	15-45	25-40	5-20
	21-80	CB-C, GR-C, C	CH	A-7-6, A-7	0	5-20	60-100	55-100	50-100	40-85	50-90	30-65
Rueter-----	0-3	GRV-SIL	GC, GC-GM	A-2-4	0-5	0-10	30-55	25-50	25-50	20-45	10-35	2-15
	3-14	GRV-SIL, GRX-SIL	GC, GC-GM	A-2-6, A-4, A-6, A-2-4	0-5	0-10	20-55	15-50	15-45	10-40	10-35	2-15
	14-45	CBX-L, GRV-L, GRV-SCL	GC-GM, GC	A-2-4, A-1-a, A-2-6	0-5	10-50	25-55	20-50	15-45	10-35	15-40	5-20
	45-80	CBX-C, GRV-C	GC-GM	A-2-7, A-7	0-5	10-50	25-85	20-80	20-80	15-70	50-75	25-60
73139: Poynor-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-4	GR-SIL	GC-GM, GM	A-1, A-2	0-2	0-15	60-80	50-75	25-50	20-35	15-25	NP-10
	4-13	GRV-SIL, GR-SIL	GC-GM, GM	A-2, A-4	0-7	0-25	50-75	35-70	35-65	30-55	15-25	NP-10
	13-24	GRV-SICL, GRX-SIL	GC	A-2, A-6	0-10	0-40	30-50	20-50	20-50	15-45	25-35	10-15
	24-80	C, CB-C	CH	A-7	0-2	0-15	80-100	70-100	65-95	60-95	50-80	25-45
Clarksville--	0-1	SPM			---	---	---	---	---	---	---	---
	1-5	GR-SIL	GC, SC-SM, SC	A-1, A-2	0-2	0-15	60-80	50-75	25-50	20-40	15-25	NP-10
	5-8	GR-SIL, GRV-SIL	GC-GM, GC	A-2, A-4	0-7	0-25	50-75	35-70	30-65	25-50	15-25	NP-10
	8-18	GR-L, GR-SIL, GRV-L, GRV-SIL	GC-GM, GC	A-2, A-4, A-6	0-7	0-25	50-75	35-70	30-65	25-50	20-35	5-15
	18-42	GRV-L, GRV-SIL, GRV-CL, GRV-SICL, GRX-CL	GC, GW-GC, GC-GM	A-2, A-6	0-10	0-40	25-50	15-50	10-45	10-40	30-45	15-25
	42-65	C, GR-C, GRV-C	CL, CH, GC	A-2, A-7	0-7	0-25	35-95	25-90	25-85	25-80	40-60	20-30
Scholten-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-3	GR-SIL	GC-GM, GM	A-1, A-2	0-2	0-15	60-80	50-75	45-50	20-40	15-25	NP-10
	3-8	GRV-SIL, GR-SIL	GC-GM, GM	A-2, A-4	0-7	0-25	50-75	35-70	35-65	30-50	15-25	NP-10
	8-17	GRV-SICL, GRV-SIL	GC-GM, GC	A-2, A-4, A-6	0-7	0-25	35-50	25-50	25-50	20-45	20-40	5-20
	17-41	GRV-SIL, GRV-SICL, CBV-SIL, CBV-SICL, GRX-SIL	GC	A-2	0-7	0-25	25-50	15-50	15-50	10-35	25-35	10-15
	41-80	GR-SICL, GRV-SICL, GR-C, GRV-C, GR-SIC	CL, CH, GC	A-2, A-7	0-7	0-25	45-80	35-75	35-75	30-70	40-70	20-40
73140: Clarksville--	0-1	SPM			---	---	---	---	---	---	---	---
	1-6	GR-SIL	GC-GM, GM	A-1, A-2	0-2	0-15	60-80	50-75	25-50	20-35	15-25	NP-10
	6-13	GR-SIL, GRV-SIL	GC-GM, GM	A-2, A-4	0-7	0-25	50-75	35-70	30-65	25-50	15-25	NP-10
	13-21	GR-L, GR-SIL, GRV-L, GRV-SIL	GC-GM, GC	A-2, A-4, A-6	0-7	0-25	50-75	35-70	30-65	25-50	20-35	5-15
	21-43	GRV-L, GRV-SIL, GRV-CL, GRV-SICL, GRX-CL	GC	A-2, A-6	0-10	0-40	25-50	15-50	10-45	10-40	35-45	15-25
	43-66	C, GR-C, GRV-C	GC, CL, CH	A-2, A-7	0-7	0-25	35-95	25-90	25-85	25-80	40-60	20-30

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing sieve number--				Liquid	Plas-
			Unified	AASHTO	>10	3-10	4	10	40	200	limit	ticity
					inches	inches						
					Pct	Pct					Pct	
73140: Scholten-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-6	GRV-SIL	GC-GM, GM	A-1, A-2	0-7	0-25	35-50	25-50	25-50	20-35	15-25	NP-10
	6-13	GR-SIL, GRV-SIL	GM, GC-GM	A-2, A-4	0-7	0-25	50-75	35-70	35-65	30-50	15-25	NP-10
	13-34	GRV-CL, GRX-L, GRX-CL, GRV-SIL	GC-GM, GC	A-2, A-4, A-6	0-7	0-25	25-50	15-50	15-50	10-45	20-35	5-15
	34-58	GRV-SIL, GRV-L, GRV-CL, GRX-SIL, GRX-CL, GRX-L	GC	A-2	0-7	0-25	25-50	15-50	15-50	10-35	25-35	10-15
	58-80	GR-SICL, GR-CL, GR-C, GRV-CL, GRV-C	GC, CL, CH	A-2, A-7	0-10	0-40	45-80	35-75	35-75	30-70	35-70	20-40
73141: Firebaugh-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-4	SI	ML, CL-ML	A-4	0	0	90-100	85-100	80-100	75-95	15-25	NP-7
	4-8	SIL, SI	ML, CL-ML	A-4	0	0	90-100	85-100	80-100	75-95	15-25	NP-7
	8-21	SIL, SICL	CL	A-6	0	0	80-100	75-100	70-95	60-85	30-40	10-20
	21-36	GRV-SIL, GR-L, GRV-L, GRV-SICL	SC, GC, CL	A-6, A-2	0-7	0-25	35-80	25-75	25-65	25-60	30-40	10-20
	36-71	GR-CL, GR-C, CBV-C, CBX-C	GC, SC, CL, CH	A-2, A-7	0-10	0-40	25-80	15-75	15-70	15-65	40-60	20-30
73142: Firebaugh-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-4	SIL	ML, CL-ML	A-4	0	0	90-100	80-100	70-100	70-95	15-25	NP-7
	4-11	SIL, SI	ML, CL-ML	A-4	0	0	90-100	80-100	70-100	70-95	15-20	NP-7
	11-28	SIL, SICL	CL	A-6	0	0	80-100	75-100	71-95	60-85	30-40	10-20
	28-39	GR-L, GRV-L, GR-SIL, GRV-SICL	GC, SC, CL	A-6, A-2	0-7	0-25	35-80	25-70	25-65	25-60	30-40	10-20
	39-71	GR-CL, GR-C, CBV-C, CBX-C	SC, CL, CH, GC	A-2, A-7	0-10	0-40	25-80	15-75	15-70	15-65	40-60	20-30
73143: Courtois-----	0-7	SIL	CL, CL-ML	A-6, A-4	0	0	80-100	75-100	65-95	55-80	20-35	5-15
	7-15	SIL, SICL, SIC	CL	A-6, A-7	0	0	85-100	85-100	70-95	60-90	30-45	10-25
	15-32	SICL, C, SIC, GR-CL, GRV-CL	SC, CL	A-7, A-2	0	0-25	50-100	35-100	35-95	30-95	40-50	20-30
	32-80	C, GR-C	CH	A-7	0	0-10	80-100	60-100	60-95	55-95	60-80	30-45
73144: Courtois-----	0-7	SIL	CL, CL-ML	A-6, A-4	0	0	80-100	75-100	65-95	55-80	20-35	5-15
	7-15	SICL, SIL, SIC	CL	A-6, A-7	0	0	85-100	85-100	70-95	60-90	30-45	10-25
	15-32	SICL, C, SIC, GR-CL, GRV-CL	SC, CL	A-7, A-2	0	0-25	50-100	35-100	35-95	30-95	40-50	20-30
	32-80	C, GR-C	CH	A-7	0	0-10	80-100	60-100	60-95	60-95	60-80	30-45
73145: Crider-----	0-8	SIL	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	85-100	20-35	5-15
	8-32	SIL, SICL	CL	A-6	0	0	100	95-100	90-100	85-100	30-40	10-15
	32-74	SICL, C, SIC	CL, CH	A-6, A-7	0	0	90-100	85-100	70-100	60-100	35-55	15-25
73146: Marquand-----	0-5	SIL	ML, CL-ML	A-4	0	0	100	95-100	90-100	85-100	15-25	NP-10
	5-8	SIL, SI	ML, CL-ML	A-4	0	0	100	95-100	90-100	85-100	15-25	NP-10
	8-22	SIL, SICL	CL	A-6	0	0	100	95-100	90-100	85-100	30-40	10-20
	22-43	SICL, SIL	CL	A-6	0	0	95-100	85-100	80-100	70-100	30-40	10-20
	43-80	L, SIL, CL, SICL	CL	A-6, A-7	0	0-2	85-100	75-100	70-100	55-95	30-45	15-25

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO	>10 inches Pct	3-10 inches Pct	sieve number--					
							4	10	40	200		
73147:												
Fourche-----	0-6	SIL	CL-ML, CL	A-4	0	0	100	95-100	90-100	85-100	20-30	5-10
	6-30	SIL, SICL	CL	A-6	0	0	100	95-100	90-100	85-100	30-40	10-20
	30-54	SIL, SICL, SIC	CL	A-6, A-7	0	0-2	85-100	85-100	75-100	60-95	30-45	10-25
	54-66	SIC, C	CH	A-7	0	0-2	85-100	75-100	70-100	60-95	50-70	25-40
73148:												
Jonca-----	0-5	SIL	ML, CL-ML	A-4	0	0	100	95-100	85-95	65-90	15-25	NP-5
	5-12	SIL	ML, CL-ML	A-4	0	0	100	95-100	85-100	65-90	15-25	NP-5
	12-32	SIL, L, SICL	CL	A-6	0	0	100	95-100	85-100	65-90	30-40	10-15
	32-52	SL, FSL, L	SC-SM, CL-ML, CL, SC	A-4, A-6	0	0	95-100	95-100	85-95	45-85	20-35	5-15
	52-62	CL, L	SC-SM, CL-ML, CL, SC	A-4, A-6	0	0-7	90-100	75-95	60-85	40-80	20-35	5-15
73149:												
Caneyville---	0-4	SIL	CL, CL-ML	A-4, A-6	0	0-2	90-100	85-100	75-100	60-95	20-35	5-15
	4-11	SIC, C, SICL	CL, CH	A-7	0	0-2	95-100	85-100	75-100	65-100	40-70	20-35
	11-29	SIC, C, SICL	CL, CH	A-7	0	0-2	95-100	85-100	75-100	65-100	40-70	20-35
Bucklick-----	0-5	SIL	CL	A-6, A-4	0	0-2	90-100	85-100	75-100	60-95	20-35	5-15
	5-30	SICL, SIC, C	CH, CL	A-6	0	0	90-100	85-100	75-100	65-100	30-60	10-30
	30-46	SIC, C, GR-C	CL, CH, SC	A-7	0-7	0-7	50-100	50-100	50-100	45-100	40-70	20-40
73150:												
Caneyville---	0-8	SIL	CL, CL-ML	A-4, A-6	0	0-2	90-100	85-100	75-100	60-95	20-35	5-15
	8-18	SIC, C, SICL	CL	A-7	0	0-2	95-100	85-100	75-100	65-95	25-50	15-30
	18-30	SIC, C, SICL	CL, CH	A-7	0	0-2	95-100	85-100	75-100	65-95	40-70	20-35
Bucklick-----	0-3	SIL	CL	A-4, A-6	0	0-2	90-100	85-100	75-100	60-95	20-35	5-15
	3-16	SICL, SIC, C	CL, CH	A-6	0	0	90-100	85-100	75-100	65-100	30-60	10-30
	16-45	SIC, C, GR-C	SC, CL, CH	A-7	0-7	0-7	50-100	50-100	50-100	45-100	40-70	20-40
73151:												
Caneyville---	0-1	SPM			---	---	---	---	---	---	---	---
	1-4	SIL	CL, CL-ML	A-4, A-6	0	0-2	90-100	85-100	75-100	60-95	20-35	5-15
	4-11	SIC, C, SICL	CL, CH	A-7	0	0-2	95-100	85-100	75-100	65-100	40-70	20-35
	11-31	SIC, C, SICL	CL, CH	A-7	0	0-2	95-100	85-100	75-100	65-100	40-70	20-35
Gasconade----	0-3	SIC	CL, CH	A-7, A-6	0-5	0-10	90-95	85-90	80-85	75-80	35-60	10-30
	3-16	CBV-CL, GRV-C, GRV-SIC, CBV- SICL	GC	A-7, A-2	0-25	15-50	35-60	25-50	25-50	25-45	40-70	20-35
Bucklick-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-6	SIL	CL	A-4, A-6	0	0-2	90-100	85-100	75-100	60-95	20-35	5-15
	6-31	SICL, SIC, C	CH, CL	A-6	0	0	90-100	85-100	75-100	65-100	30-60	10-30
	31-47	SIC, C, GR-C	SC, CL, CH	A-7	0-7	0-7	50-100	50-100	50-100	45-100	40-70	20-40
73152:												
Lily-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-3	SIL	ML, CL-ML	A-4	0	0-5	90-100	80-100	80-95	65-85	10-20	NP-5
	3-9	FSL, SIL	SM, ML, CL-ML	A-4	0	0-5	75-100	70-100	60-95	35-80	10-20	NP-5
	9-25	CL, L, GR-L	SC, CL	A-6	0	0-10	75-100	70-100	55-95	35-80	25-35	10-15
Ramsey-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-3	FSL	SM, SC-SM	A-4	0	0-10	80-100	75-100	60-90	35-50	10-20	NP-5
	3-7	FSL, SL	SM, ML, CL-ML	A-4	0	0-10	75-100	70-100	55-95	35-80	10-20	NP-5
	7-17	FSL, SL, GR-SL	SM, SC-SM	A-2, A-4	0	0-10	70-95	60-90	45-80	20-45	15-35	NP-10

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
73153:												
Lily-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-4	FSL	SM, SC-SM	A-4	0	0-5	80-100	75-100	60-80	35-50	10-20	NP-5
	4-11	FSL, SIL	SM, ML, CL-ML	A-4	0	0-5	75-100	70-100	55-95	35-80	10-20	NP-5
	11-28	L, GR-L, CL	SC, CL	A-6	0	0-10	75-100	70-100	55-95	35-80	25-35	10-15
Ramsey-----												
	0-1	SPM			---	---	---	---	---	---	---	---
	1-3	FSL	SM, SC-SM	A-4	0	0-10	80-100	75-100	60-90	35-50	10-20	NP-5
	3-7	FSL, SL	SM, SC-SM, ML, CL-ML	A-4	0	0-10	75-100	70-100	55-95	35-80	10-20	NP-5
	7-17	FSL, SL, GR-SL	SC-SM, SM	A-2, A-4	0	0-10	70-95	60-90	45-80	20-45	15-35	NP-10
73154:												
Ramsey-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-3	FSL	SM, SC-SM	A-4	0	0-10	80-100	75-100	60-90	35-50	10-20	NP-5
	3-7	FSL, SL	SM, SC-SM, ML, CL-ML	A-4	0	0-10	75-100	70-100	55-95	35-80	10-20	NP-5
	7-17	FSL, SL, GR-SL	SM, SC-SM	A-2, A-4	0	0-10	70-95	60-90	45-80	20-45	15-35	NP-10
Rock outcrop.												
73155:												
Gasconade----	0-4	SIC	CL, CH	A-7, A-6	0-5	0-10	90-95	85-90	80-85	75-80	35-60	10-30
	4-13	CBV-CL, GRV-C, GRV-SIC, FLV- SIC	GC	A-6, A-7, A-2	0-25	10-50	35-60	25-50	25-50	25-40	40-70	20-35
Rock outcrop.												
73156:												
Alred-----	0-1	SPM			---	---	---	---	---	---	---	---
	1-6	GRV-SIL	GC-GM, GC	A-1, A-2	0-7	0-25	35-50	25-50	25-50	20-35	15-25	NP-10
	6-11	GR-SIL, GRV-SIL	GC-GM, GC	A-4, A-2	0-7	0-25	50-75	35-70	35-65	30-50	15-25	NP-10
	11-31	GRV-L, GRX-L, GRV-SIL, GRX- SIL	GC, GC-GM	A-2	0-10	0-40	25-50	15-50	15-50	10-35	20-35	5-15
	31-79	C, GR-C, CB-C	CH	A-7	0-7	0-15	80-100	70-100	65-95	60-95	50-80	25-45
Gepp-----												
	0-1	SPM			---	---	---	---	---	---	---	---
	1-6	GRV-SIL	GC-GM, GC	A-1, A-2	0-7	0-25	35-50	25-50	25-50	20-35	15-25	NP-10
	6-12	GR-CL, GR-SICL, SIC, C	SC, CL, CH	A-6, A-7	0	0-7	60-100	50-100	45-100	40-95	35-65	15-30
	12-67	C	CH	A-7	0-2	0-10	85-100	75-100	70-100	65-95	60-80	30-45
73157:												
Captina-----	0-5	SIL	CL-ML, CL	A-4	0	0	95-100	95-100	90-100	75-95	15-25	NP-10
	5-25	SIL, SICL	CL	A-6	0	0	90-100	90-100	85-100	80-95	30-40	10-20
	25-31	GRV-SICL, GR- SIL, SIL, GRV- SIL, GRX-SIL, SICL	GC, SC, CL	A-2, A-6	0	0-25	30-100	25-100	20-100	15-95	30-40	10-20
	31-78	GR-C, CB-CL, CBV-C, GRV-C, GR-SIC, GRV- SIC	GC, SC, CL, CH	A-2, A-7	0	0-25	45-80	35-75	35-75	30-70	40-70	20-35
74644:												
Deible-----	0-10	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	10-15	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	15-37	SIC, C	CH	A-7-6, A-7	0	0	100	100	90-100	85-95	50-70	25-40
	37-80	SICL, SIL	CL	A-6, A-7	0	0	85-100	80-100	80-95	65-90	30-50	10-25

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage Passing				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	sieve number--					
							4	10	40	200		
	In				Pct	Pct					Pct	
74645:												
Higdon-----	0-8	SIL	CL	A-4	0	0	100	100	90-100	85-95	20-30	5-10
	8-13	SIL	CL	A-4	0	0	100	100	90-100	85-95	25-30	5-10
	13-27	SICL	CL	A-6	0	0	100	100	95-100	95-100	30-45	15-25
	27-67	SICL, SIL	CL	A-6	0	0	95-100	95-100	90-100	85-95	30-40	10-20
74646:												
Cornwall-----	0-5	SIL	CL, CL-ML	A-4	0	0	85-100	80-100	80-100	75-95	20-30	5-10
	5-17	SIL, SICL	CL	A-6	0	0	85-100	80-100	80-100	75-95	30-40	10-20
	17-39	SIL, SICL, GR- SIL, GRV-SIL	CL, SC, GC	A-6, A-2	0-2	0-15	30-100	25-100	25-100	20-95	30-40	10-20
	39-60	GRX-CL, GRV- SICL, GR-SICL, GRX-C, GRV-C	CL, GC, SC	A-7, A-2, A-6	0-2	0-15	30-80	20-75	20-75	15-70	35-50	10-25
74647:												
Cornwall-----	0-6	SIL	CL, CL-ML	A-4	0	0	85-100	80-100	80-100	75-95	20-30	5-10
	6-34	SICL	CL	A-6	0	0	85-100	80-100	80-100	75-95	30-40	10-20
	34-52	SIL, SICL, GR- SIL, GRV-SIL	CL, SC, GC	A-6, A-2	0-2	0-15	30-100	25-100	20-100	20-100	30-40	10-20
	52-60	GRX-CL, GRV- SICL, GR-SICL, GRX-C, GRV-C	CL, GC, SC	A-7, A-2, A-6	0-2	0-15	30-80	20-75	20-75	15-70	35-50	10-25
74648:												
Aslinger-----	0-6	SIL	CL, CL-ML	A-4	0	0	80-100	75-95	65-95	50-90	15-25	3-8
	6-22	SICL, SIL, GR- SICL, GR-SIL	CL	A-4, A-6	0	0	70-95	65-90	50-85	50-75	27-48	9-21
	22-46	GR-CL, GR-SIL, GRV-CL	GC	A-2, A-6, A- 7-6	0	0-8	35-80	30-75	25-70	20-70	30-41	11-17
	46-80	GR-C, C, GRV-C	MH, GM	A-2, A-7	0	0-8	40-95	30-90	25-85	20-85	49-69	21-33
74649:												
Aslinger-----	0-3	SIL	CL, CL-ML	A-4	0	0	95-100	90-100	80-95	70-90	20-30	5-10
	3-8	SIL	CL, CL-ML	A-4	0	0	95-100	90-100	80-95	60-90	20-30	5-10
	8-20	SIL, SICL	CL	A-6	0	0	80-100	75-100	70-100	60-95	25-40	10-20
	20-39	GR-L, GR-SIL, GRV-L, GRV- SIL, GRX-L, GRX-SIL	GC, SC, CL	A-2, A-6	0-2	0-15	30-85	25-75	20-70	15-65	20-35	5-15
	39-52	GR-L, GR-CL, GRV-L, GRV-CL	GC, SC, CL	A-6, A-2	0-2	0-15	35-80	25-75	25-70	20-65	25-40	10-25
	52-80	GR-SICL, GR-C, GRV-CL, GRX-C, CBX-C	GC, SC	A-2, A-6, A-7	0-10	0-40	35-65	25-60	25-55	20-50	35-60	15-35
74650:												
Higdon-----	0-10	SIL	CL	A-4	0	0	100	100	90-100	70-90	25-35	5-15
	10-19	SIL	CL	A-4	0	0	100	100	90-100	70-90	25-35	5-15
	19-80	SICL, SIL	CL	A-5, A-6	0	0	95-100	90-100	75-100	70-95	30-45	10-20
74684:												
Racoon-----	0-4	SIL	CL	A-4	0	0	90-100	90-100	85-95	80-95	20-35	5-15
	4-26	SIL	CL	A-4	0	0	90-100	90-100	85-95	80-95	20-35	5-15
	26-58	SIL, CL, SICL	CL	A-6	0	0	90-100	90-100	80-100	60-95	30-40	10-20
	58-80	L, SIL	CL	A-6	0	0	90-100	90-100	80-100	60-95	25-35	10-15

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO	>10 inches Pct	3-10 inches Pct	4	10	40	200		
75381: Bearthicket--	0-6	SIL	CL-ML, CL	A-4	0	0	100	95-100	95-100	75-100	20-30	5-10
	6-19	SIL	CL-ML, CL	A-4	0	0	100	95-100	95-100	75-100	20-30	5-10
	19-45	SICL, SIL	CL	A-6	0	0	95-100	95-100	90-100	70-100	25-35	10-15
	45-64	L, SIL	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	90-100	65-100	20-35	5-15
	64-80	COSL, FSL, L, SL, GR-SL, GR- FSL, GRV-SL	SC-SM, SC, CL-ML, CL	A-2, A-4	0	0-10	60-100	50-100	50-100	20-60	15-30	5-15
75395: Jamesfin----	0-10	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-40	5-20
	10-60	SIL, SICL	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	90-100	70-90	25-45	5-25
75408: Secesh-----	0-8	SIL	ML	A-4	0	0-10	85-100	80-100	75-95	60-90	20-30	NP-7
	8-11	SICL, SIL	CL, CL-ML	A-4, A-6	0	0-10	80-100	75-100	70-95	60-90	25-35	5-12
	11-27	GR-SICL, GR- SIL, L	CL, GC, SC	A-6	0	0-10	65-90	55-85	50-75	40-65	30-40	11-20
	27-80	GR-SC, GRV-SC, GRV-SCL, GR-CL	GC, SC	A-2-6, A-6	0	10-20	50-75	35-65	25-45	20-40	30-45	11-20
75409: Relfe-----	0-7	SL	SC-SM, SC	A-4, A-2	0-1	0-10	75-100	75-100	45-65	20-40	15-25	5-10
	7-64	GRV-LCOS, GRV- COS, GRX-S, GRX-LCOS	GW, GW-GM, SP, SP-SM	A-2, A-1	0-7	0-40	20-80	15-50	5-35	0-10	15-25	NP-10
75410: Relfe-----	0-6	GR-SL	SC-SM	A-2	0	0-10	60-80	50-75	25-50	10-35	15-25	5-10
	6-64	GRV-COS, GRV- LCOS, GRX-COS, GRX-LCOS	GP, GP-GM, SP-SM, SP	A-1, A-2	0-7	0-40	20-80	15-50	5-35	0-10	15-25	NP-10
75411: Tilk-----	0-8	GRV-SL	GC-GM, GP-GC	A-2	0	0-15	30-90	15-50	10-35	5-35	20-25	5-10
	8-16	GRV-L, CBV-L, GRX-L, GRV- COSL	SC-SM, GC-GM	A-2	0	0-15	30-90	15-50	10-45	5-35	20-25	5-10
	16-47	CBV-L, GRX-L, GRV-L, GRX-SL, GRV-SL	GP-GC, GC-GM, SC, SC-SM, GC	A-2	0-5	0-40	30-90	15-50	10-45	5-35	20-30	5-15
	47-70	GRX-LCOS, CBX- LCOS, GRV- COSL, GRX- COSL, CBX- COSL, GRX-SL	GW-GC, SW-SC	A-2	0-30	0-40	30-90	15-50	10-25	5-10	20-30	5-15
75416: Gladden-----	0-5	L	CL, CL-ML	A-4	0	0	90-100	80-100	70-95	50-75	20-30	5-10
	5-26	L, SIL	CL, CL-ML	A-4	0	0	90-100	80-100	70-100	60-80	20-30	5-10
	26-58	SL, FSL, L	CL, CL-ML, SC, SC-SM	A-2, A-4	0	0	90-100	80-100	50-95	30-70	15-30	NP-10
	58-77	COS, S, LS	SM, SC-SM, SP-SM	A-1, A-2, A-3	0	0	80-100	75-100	5-85	5-35	10-20	NP-5

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage Passing				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	sieve number--					
							4	10	40	200		
In					Pct	Pct					Pct	
77000:												
Killarney----	0-1	SPM										
	1-5	CBV-SIL	GC-GM, GC	A-2, A-4	0-10	20-60	50-70	35-60	30-55	25-50	15-25	NP-10
	5-16	GR-SIL, CBV-SIL, GRV-SIL	CL, GC, GC-GM	A-4	0-10	0-60	50-90	45-85	40-75	35-65	15-25	NP-10
	16-32	CBV-SIL, GRV-SIL	SC-SM, SC, GC, GC-GM	A-4, A-2, A-6	0-10	0-60	40-70	35-60	30-55	25-50	20-35	5-15
	32-48	GR-L, CBV-SIL, CBV-L, GRV-L, GRV-SIL, GRX-SIL	SC, GC	A-2, A-6	0-10	0-60	25-80	20-70	15-65	15-50	25-35	10-15
	48-80	GR-L, GR-CL, GRV-L, GRV-CL, CBV-L	SC, CL, GC	A-2, A-6, A-7	0	0-40	40-90	35-85	25-75	20-65	25-45	10-25
Frenchmill---	0-1	SPM										
	1-6	CBV-SIL	SC-SM, SC	A-2, A-4	0-10	20-60	50-70	35-60	30-55	20-50	15-25	NP-10
	6-19	GR-SIL, GRV-SIL, CBV-L	SC-SM, SC, CL	A-2, A-4	0-10	0-60	50-95	45-85	35-75	30-70	15-25	NP-10
	19-27	CBV-SIL, GRV-SIL	GC-GM, GC, SC-SM, SC	A-2, A-4, A-6	0-10	0-60	40-70	35-60	30-55	25-50	20-35	5-15
	27-58	GRV-L, CBV-L, GRV-CL, CBX-CL	SC, GC	A-2, A-6	0-10	0-60	40-70	35-60	25-55	20-50	25-40	10-20
	58-80	SCL, CL, GR-SCL, GR-CL, CB-CL	SC, CL	A-7, A-6, A-2	0-10	0-40	65-100	60-100	35-85	30-80	30-45	10-25
77001:												
Loughboro----	0-4	SIL	CL	A-4	0	0	100	100	85-95	75-95	20-30	5-15
	4-12	SIL	CL	A-4	0	0	100	100	85-95	75-95	20-30	5-15
	12-17	SICL	CL	A-7	0	0	100	90-100	80-100	65-95	35-50	15-25
	17-45	SICL, SIC	CH, CL	A-7	0	0-7	100	90-100	80-100	65-95	45-60	20-35
	45-67	SIL, SICL	CL	A-7	0	0-7	100	85-100	80-100	65-95	35-50	20-25
77002:												
Delassus-----	0-3	SIL	CL-ML, CL	A-4	0	0-10	85-100	80-100	75-100	65-90	15-25	NP-10
	3-7	SIL	CL, CL-ML	A-4	0	0-10	85-100	80-100	75-100	65-90	20-30	5-10
	7-31	SIL, L, SICL	CL	A-6	0	0-10	85-100	80-100	65-100	60-95	25-40	10-20
	31-61	SIL, L, SL, GR-COSL, CB-SIL	SC-SM, CL, SC, CL-ML	A-6, A-4	0	0-25	65-100	60-95	40-90	35-80	20-35	5-15
77003:												
Delassus-----	0-8	GR-SIL	CL, CL-ML	A-4	0	0-15	75-100	60-80	65-90	55-80	15-25	NP-10
	8-13	SIL, GR-SIL	CL-ML, CL	A-4	0	0-15	75-100	70-90	65-90	55-80	20-30	5-10
	13-20	L, SIL, GR-L, GR-SIL	CL	A-6	0	0-15	75-100	70-90	55-90	50-85	25-40	10-20
	20-59	SIL, GR-L, SL, GR-COSL, GR-SIL, CBV-L	CL, SC, SC-SM, CL-ML	A-6, A-2, A-4	0-10	0-40	40-90	35-80	25-75	20-65	20-35	5-15
	59-78	CB-L, GRV-SIL, GR-SICL, CBV-SICL	GC, SC	A-6, A-2	0-10	0-50	40-90	35-80	30-65	25-50	25-40	10-20
77004:												
Irondale-----	0-1	SPM										
	1-4	GR-SIL	CL, SC, SC-SM, CL-ML	A-4	0-10	5-15	65-95	60-85	45-80	40-75	15-25	NP-10
	4-9	GR-SIL, GRV-SIL, CB-SIL, CBV-SIL	CL, CL-ML, SC, SC-SM	A-4	0-10	5-50	50-95	45-85	40-80	35-75	15-25	NP-10
	9-15	GRV-SIL, CBV-SIL	GC-GM, GC, SC-SM, SC	A-2, A-6	0-10	15-50	40-70	35-60	30-55	30-50	20-35	5-15
	15-22	GRV-CL, GRV-L, CBV-SICL	GC	A-2, A-6	0-10	15-50	40-70	25-60	25-55	20-50	30-40	10-20

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	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						
77005:												
Hassler-----	0-1	SPM										
	1-6	SIL	CL, CL-ML	A-4	0-2	0-10	95-100	85-100	70-85	60-80	20-30	5-10
	6-11	SIL, GR-SIL, CB-SIL	CL-ML, CL	A-4	0-5	0-25	80-100	70-100	60-95	50-90	20-30	5-10
	11-20	L, SIL, SICL, CB-L, GR-CL, GR-SIL	CL	A-6	0-5	0-25	80-100	70-100	60-95	50-90	30-40	10-20
	20-34	GRV-L, GR-L, CBV-L	SC	A-2, A-6	0-10	0-50	55-95	40-85	30-75	20-50	30-40	10-20
	34-42	COSL, BY-COSL, GR-COSL, CB- COSL, STV-COSL	SC	A-2	0-40	0-40	55-100	40-85	25-50	15-35	25-35	10-15
Syenite-----												
	0-1	SPM										
	1-4	SIL	CL, CL-ML	A-4	0-2	0-10	95-100	85-100	70-85	50-80	20-30	5-10
	4-9	SIL, CB-SIL, GR-SIL	CL, CL-ML	A-4	0-5	0-25	95-100	85-100	70-85	50-80	20-30	5-10
	9-19	L, SIL, SICL, CB-L, GR-CL, GR-L	CL	A-6	0-5	0-25	80-100	70-100	60-95	50-90	30-40	10-20
	19-29	L, GR-L, CBV-L, BY-L, CB-L	SC	A-2, A-6	0-15	0-50	60-95	50-85	30-75	20-50	25-35	10-20
77006:												
Roselle-----	0-7	SIL	CL, CL-ML	A-4	0	0-5	85-100	85-100	80-95	65-85	20-30	5-10
	7-15	SIL, SICL	CL	A-6	0	0-5	85-100	85-100	80-95	65-90	25-40	10-25
	15-57	L, CL, CB-L	CL	A-6	0-5	0-25	85-100	85-100	65-90	50-65	25-35	10-15
	57-80	COSL, CB-COSL	SC	A-2, A-6	0-5	0-25	85-100	85-95	40-60	20-40	30-40	10-20
77007:												
Taumsauk-----	0-1	SPM										
	1-5	CB-SIL	CL, CL-ML, SC, SC-SM	A-4	0-5	7-40	65-95	60-85	45-80	40-75	15-25	NP-10
	5-17	CBX-SICL, GRV- SIL, GRV-CL, GRV-SICL, CBV- SIL, CBV-SICL	GC, SC	A-6, A-2, A-7	0-15	15-50	40-70	35-60	30-55	30-50	25-45	10-25
Irondale-----												
	0-1	SPM										
	1-5	CBV-SIL	GC, SC-SM, GC-GM, SC	A-2, A-4	0-10	20-50	40-70	35-60	30-55	25-50	15-25	NP-10
	5-10	GRV-SIL, GR- SIL, CB-SIL, CBV-SIL	CL-ML, GC, CL, GC-GM	A-4	0-10	5-50	50-90	45-85	40-80	35-75	15-25	NP-10
	10-17	GRV-SIL, CBV- SIL	GC, SC-SM, GC-GM, SC	A-2, A-6	0-10	15-50	40-70	35-60	30-55	30-50	20-35	5-15
	17-35	GRV-CL, GRV-L, CBV-SICL	GC	A-2, A-6	0-10	15-50	40-70	25-60	25-55	20-50	30-40	10-20
Rock outcrop.												
77008:												
Hassler-----	0-1	SPM										
	1-3	SIL	CL, CL-ML	A-4	0-2	0-10	95-100	85-100	70-85	60-80	20-30	5-10
	3-9	SIL, GR-SIL, CB-SIL	CL, CL-ML	A-4	0-5	0-25	80-100	70-100	60-95	50-90	20-30	5-10
	9-24	L, SIL, SICL, CB-L, GR-CL, GR-SIL	CL	A-6	0-5	0-25	80-100	70-100	60-95	50-90	30-40	10-20
	24-31	GR-L, GRV-L, CBV-L	SC	A-2, A-6	0-10	0-50	55-95	40-85	30-75	20-50	30-40	10-20
	31-48	COSL, BY-COSL, CB-COSL, GR- COSL, STV-COSL	SC	A-2	0-40	0-40	55-100	40-85	25-50	15-30	25-35	10-15



Table 18.--Physical and Chemical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective	Soil reaction	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									cation exchange capacity				Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
73055:																	
Alred-----	0-7	30-50	35-50	7-22	1.30-1.50	4.00-14.00	0.08-0.12	5.5-12	2.0-9.0	4.5-7.3	0.1-2.9	1.0-2.0	.10	.32	4	8	0
	7-15	30-50	35-50	10-22	1.40-1.60	4.00-14.00	0.06-0.10	4.0-12	2.0-9.0	4.5-6.5	0.1-2.9	0.5-1.0	.10	.32			
	15-21	18-45	35-60	12-35	1.30-1.50	4.00-14.00	0.07-0.12	7.5-13	3.0-10	4.5-6.5	0.1-2.9	0.3-0.5	.20	.28			
	21-80	10-35	5-25	42-80	1.40-1.60	0.42-1.40	0.08-0.11	14-27	13-26	4.5-7.8	6.0-8.9	0.1-0.5	.10	.28			
Rueter-----	0-3	20-45	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	2.0-11	1.0-8.0	3.5-6.0	0.1-2.9	0.5-2.0	.28	.37	3	8	0
	3-14	15-35	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	4.0-10	1.0-6.0	3.5-6.0	0.1-2.9	0.5-1.0	.37	.43			
	14-45	35-55	25-40	7-35	1.30-1.50	14.00-42.00	0.05-0.10	2.0-12	1.0-10	3.5-6.0	0.1-2.9	0.1-0.5	.32	.43			
	45-80	15-35	5-25	40-80	1.20-1.40	4.00-14.00	0.02-0.05	10-32	7.0-29	3.5-6.0	6.0-8.9	0.1-0.5	.20	.32			
73139:																	
Poynor-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	3	8	0
	1-4	10-40	50-80	5-15	1.20-1.45	14.00-42.00	0.15-0.20	6.9-15	2.8-7.0	3.5-6.0	0.0-2.9	1.0-8.0	.15	.37			
	4-13	10-40	50-80	5-15	1.25-1.45	14.00-42.00	0.12-0.18	3.2-7.3	1.2-3.2	3.5-6.0	0.0-2.9	0.2-2.0	.20	.49			
	13-24	10-40	40-80	15-30	1.40-1.55	14.00-42.00	0.05-0.12	2.9-12	1.8-8.3	4.5-5.5	0.0-2.9	0.2-1.0	.05	.43			
	24-80	1-30	10-50	45-90	1.50-1.65	4.00-14.00	0.07-0.09	8.5-22	6.1-19	4.5-5.5	3.0-5.9	0.2-0.3	.02	.10			
Clarksville--	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	3	8	0
	1-5	10-40	50-70	5-15	1.20-1.40	14.00-42.00	0.15-0.20	7.1-25	2.3-21	3.5-6.0	0.0-2.9	2.0-10	.17	.28			
	5-8	10-40	50-70	5-15	1.20-1.40	14.00-42.00	0.12-0.18	3.7-8.1	1.7-5.2	3.5-6.0	0.0-2.9	0.5-2.0	.17	.37			
	8-18	10-40	40-80	10-27	1.30-1.45	14.00-42.00	0.09-0.14	3.7-9.6	1.9-7.9	4.5-5.5	0.0-2.9	0.1-1.0	.10	.32			
	18-42	15-50	20-60	20-40	1.35-1.55	4.00-14.00	0.05-0.12	5.1-13	3.7-9.1	4.5-5.5	0.0-2.9	0.1-0.5	.05	.32			
	42-65	10-40	15-40	40-60	1.35-1.55	4.00-14.00	0.04-0.08	6.4-16	5.2-12	4.5-5.5	3.0-5.9	0.1-0.2	.05	.20			
Scholten----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	3	8	0
	1-3	10-40	50-80	5-15	1.20-1.40	14.00-42.00	0.15-0.20	9.2-18	3.6-8.5	3.5-6.0	0.0-2.9	2.0-7.0	.20	.37			
	3-8	10-40	50-80	5-15	1.20-1.40	4.00-14.00	0.12-0.18	5.6-8.6	2.3-4.3	3.5-6.0	0.0-2.9	1.0-2.0	.37	.49			
	8-17	5-30	50-80	10-36	1.30-1.45	4.00-14.00	0.08-0.12	7.3-18	4.5-13	4.5-5.5	0.0-2.9	0.7-2.0	.15	.37			
	17-41	5-30	50-80	15-30	1.55-1.75	0.01-0.42	0.02-0.06	5.7-14	4.6-11	4.5-5.5	0.0-2.9	0.2-0.3	.15	.37			
	41-80	5-25	10-50	35-80	1.35-1.55	14.00-42.00	0.01-0.05	7.6-22	5.2-18	4.5-5.5	3.0-5.9	0.0-0.2	.10	.15			
73140:																	
Clarksville--	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	3	8	0
	1-6	10-40	50-70	5-15	1.20-1.40	14.00-42.00	0.15-0.20	7.1-25	2.3-21	3.5-6.0	0.0-2.9	2.0-10	.10	.37			
	6-13	10-40	50-70	5-15	1.20-1.40	14.00-42.00	0.12-0.18	3.7-8.1	1.7-5.2	3.5-6.0	0.0-2.9	0.5-2.0	.15	.43			
	13-21	10-40	40-80	10-27	1.30-1.45	14.00-42.00	0.09-0.14	3.7-9.6	1.9-7.9	4.5-5.5	0.0-2.9	0.2-1.0	.10	.37			
	21-43	15-50	20-60	20-40	1.35-1.55	4.00-14.00	0.05-0.12	5.1-13	3.7-9.1	4.5-5.5	0.0-2.9	0.2-0.5	.05	.28			
	43-66	10-40	15-40	40-60	1.35-1.55	4.00-14.00	0.04-0.08	6.4-16	5.2-12	4.5-5.5	3.0-5.9	0.1-0.2	.05	.15			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
									cation exchange capacity				Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
73140: Scholten-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	3	8	0
	1-6	10-40	50-80	5-15	1.20-1.40	14.00-42.00	0.09-0.15	5.5-11	1.9-4.5	3.5-6.0	0.0-2.9	1.0-5.0	.20	.37			
	6-13	10-40	50-80	5-15	1.20-1.40	4.00-14.00	0.12-0.18	3.9-6.4	1.7-3.9	3.5-6.0	0.0-2.9	0.6-2.0	.20	.49			
	13-34	20-52	20-60	10-30	1.30-1.45	4.00-14.00	0.06-0.10	3.0-13	1.5-12	4.5-5.5	0.0-2.9	0.1-0.7	.05	.37			
	34-58	15-45	20-60	15-30	1.55-1.75	0.01-0.42	0.02-0.06	3.4-11	2.1-8.3	4.5-5.5	0.0-2.9	0.0-0.5	.10	.43			
	58-80	10-45	10-50	35-80	1.35-1.55	14.00-42.00	0.01-0.05	5.8-16	4.5-14	4.5-5.5	3.0-5.9	0.0-0.3	.10	.17			
73141: Firebaugh----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	4	5	56
	1-4	5-20	80-90	5-15	0.95-1.15	4.00-14.00	0.22-0.24	6.5-13	3.5-7.9	4.5-6.0	0.0-2.9	2.0-5.0	.49	.49			
	4-8	5-25	65-90	5-15	1.25-1.40	4.00-14.00	0.22-0.24	5.2-7.3	2.5-5.0	4.5-6.0	0.0-2.9	1.0-2.0	.55	.55			
	8-21	5-25	45-75	20-35	1.25-1.45	4.00-14.00	0.16-0.20	9.7-20	7.6-17	4.5-5.5	0.0-2.9	0.5-1.0	.32	.37			
	21-36	5-35	40-65	20-35	1.50-1.70	0.42-1.40	0.05-0.10	5.9-17	4.3-16	4.5-5.5	0.0-2.9	0.2-0.3	.10	.37			
	36-71	5-40	15-40	35-60	1.35-1.60	1.40-4.00	0.05-0.10	6.6-23	5.4-21	4.5-5.5	3.0-5.9	0.2-0.2	.10	.20			
73142: Firebaugh----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	4	5	56
	1-4	5-25	70-85	5-15	0.95-1.15	4.00-14.00	0.22-0.24	6.5-13	3.5-7.9	4.5-6.0	0.0-2.9	2.0-5.0	.37	.49			
	4-11	5-25	65-90	5-15	1.25-1.40	4.00-14.00	0.22-0.24	5.2-7.3	2.5-5.0	4.5-6.0	0.0-2.9	1.0-2.0	.55	.64			
	11-28	5-25	50-75	20-35	1.25-1.45	4.00-14.00	0.16-0.20	9.7-20	7.6-17	4.5-5.5	0.0-2.9	0.5-1.0	.24	.37			
	28-39	5-35	40-65	20-35	1.35-1.60	0.42-1.40	0.05-0.10	5.9-17	4.3-16	4.5-5.5	0.0-2.9	0.2-0.3	.20	.49			
	39-71	5-40	15-40	35-60	1.35-1.60	1.40-4.00	0.05-0.10	6.6-23	5.4-21	4.5-5.5	3.0-5.9	0.2-0.2	.20	.32			
73143: Courtois-----	0-7	2-20	50-80	10-27	1.20-1.40	4.00-14.00	0.18-0.23	8.3-24	3.5-20	5.1-7.3	0.0-2.9	1.0-10	.49	.49	4	5	56
	7-15	2-20	50-75	25-40	1.25-1.55	4.00-14.00	0.17-0.21	9.6-19	7.6-16	5.1-6.0	0.0-2.9	0.5-3.0	.37	.37			
	15-32	2-25	35-60	35-50	1.40-1.60	4.00-14.00	0.06-0.14	12-21	8.5-18	5.1-6.0	3.0-5.9	0.2-1.0	.28	.28			
	32-80	1-25	5-40	60-95	1.30-1.60	4.00-14.00	0.06-0.10	24-42	17-37	5.1-7.3	3.0-5.9	0.1-1.0	.15	.15			
73144: Courtois-----	0-7	2-20	50-80	10-27	1.20-1.40	4.00-14.00	0.18-0.23	8.3-24	3.5-20	5.1-7.3	0.0-2.9	1.0-10	.49	.49	4	5	56
	7-15	2-20	50-85	25-40	1.25-1.55	4.00-14.00	0.17-0.21	9.6-19	7.6-16	5.1-6.0	0.0-2.9	0.5-3.0	.37	.37			
	15-32	2-25	35-60	35-50	1.40-1.60	4.00-14.00	0.06-0.14	12-21	8.5-18	5.1-6.0	3.0-5.9	0.2-1.0	.28	.28			
	32-80	1-25	5-40	60-95	1.30-1.60	4.00-14.00	0.06-0.10	24-42	17-37	5.1-7.3	3.0-5.9	0.1-1.0	.15	.15			
73145: Crider-----	0-8	2-20	50-80	10-27	1.00-1.20	4.00-14.00	0.22-0.24	8.5-16	7.4-9.1	5.1-7.3	0.0-2.9	2.0-5.0	.43	.43	5	5	56
	8-32	2-20	50-75	25-35	1.20-1.45	4.00-14.00	0.18-0.22	8.8-14	6.1-12	5.1-7.3	0.0-2.9	0.3-1.0	.43	.43			
	32-74	2-25	35-70	30-55	1.20-1.55	4.00-14.00	0.08-0.18	9.3-20	6.3-10	5.1-6.5	3.0-5.9	0.2-0.5	.32	.32			
73146: Marquand-----	0-5	5-25	60-80	10-20	0.95-1.15	4.00-14.00	0.22-0.24	6.3-13	2.8-12	5.6-6.5	0.0-2.9	2.0-5.0	.49	.49	5	5	56
	5-8	5-25	60-80	10-20	0.95-1.15	4.00-14.00	0.22-0.24	6.3-13	2.8-12	5.6-6.5	0.0-2.9	0.9-2.0	.49	.49			
	8-22	2-20	50-75	20-35	1.25-1.45	1.40-4.00	0.17-0.22	8.1-23	4.5-18	4.5-6.0	0.0-2.9	0.2-0.9	.43	.43			
	22-43	2-20	50-75	20-35	1.25-1.45	1.40-4.00	0.17-0.20	8.8-20	7.4-15	4.5-5.5	0.0-2.9	0.2-0.3	.43	.43			
	43-80	2-30	35-70	25-40	1.30-1.50	1.40-4.00	0.14-0.20	8.1-26	6.1-22	4.5-5.5	0.0-2.9	0.2-0.3	.37	.37			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
									cation exchange capacity				pH	Kw	Kf		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
73147:																	
Fourche-----	0-6	2-20	50-80	10-20	1.00-1.20	4.00-14.00	0.20-0.22	7.5-15	3.3-16	5.6-7.3	0.0-2.9	1.0-5.0	.43	.43	5	5	56
	6-30	2-20	55-75	20-35	1.20-1.45	1.40-4.00	0.16-0.20	9.3-18	6.3-16	4.5-6.0	0.0-2.9	0.2-0.9	.43	.43			
	30-54	2-20	40-75	25-50	1.30-1.60	1.40-4.00	0.14-0.18	9.7-18	7.4-15	4.5-5.5	0.0-2.9	0.2-0.3	.32	.32			
	54-66	1-25	10-40	50-80	1.30-1.60	1.40-4.00	0.08-0.12	15-36	11-30	5.1-7.3	3.0-5.9	0.2-0.3	.15	.15			
73148:																	
Jonca-----	0-5	10-40	50-75	5-15	1.05-1.35	4.00-14.00	0.22-0.24	5.5-15	2.9-14	3.5-6.0	0.0-2.9	2.0-6.0	.32	.32	4	5	56
	5-12	10-40	50-75	5-15	1.05-1.35	4.00-14.00	0.22-0.24	5.5-15	2.9-14	3.5-6.0	0.0-2.9	0.5-2.0	.32	.32			
	12-32	10-40	30-65	20-35	1.15-1.40	1.40-14.00	0.18-0.20	11-19	8.2-14	3.5-5.5	0.0-2.9	0.2-0.5	.32	.32			
	32-52	20-70	20-60	10-27	1.60-1.90	0.42-1.40	0.04-0.10	6.9-15	4.9-11	3.5-5.5	0.0-2.9	0.2-0.4	.28	.28			
	52-62	30-80	10-50	7-30	1.25-1.50	1.40-14.00	0.04-0.10	11-19	8.2-14	3.5-5.5	0.0-2.9	0.2-0.4	.32	.32			
73149:																	
Caneyville---	0-4	2-30	50-80	10-27	1.00-1.20	4.00-14.00	0.23-0.24	8.7-18	4.9-9.0	4.5-6.0	0.0-2.9	2.0-5.0	.32	.32	2	5	56
	4-11	2-20	20-60	27-50	1.25-1.55	1.40-4.00	0.10-0.16	16-36	11-33	5.1-7.3	3.0-5.9	0.5-2.0	.24	.24			
	11-29	2-20	20-60	35-70	1.25-1.55	1.40-4.00	0.10-0.16	16-36	11-33	5.6-7.8	3.0-5.9	0.2-1.0	.20	.20			
Bucklick-----	0-5	2-30	50-80	10-27	1.30-1.40	4.00-14.00	0.22-0.24	8.0-18	4.4-7.0	5.6-7.3	0.0-2.9	2.0-4.0	.32	.32	4	6	48
	5-30	2-20	20-70	30-60	1.30-1.40	4.00-14.00	0.10-0.16	13-27	6.0-10	5.6-7.3	3.0-5.9	0.5-2.0	.24	.24			
	30-46	1-40	10-60	40-80	1.30-1.40	4.00-14.00	0.06-0.12	22-33	16-30	5.6-7.3	6.0-9.0	0.2-1.0	.20	.20			
73150:																	
Caneyville---	0-8	2-30	50-80	10-27	1.00-1.20	4.00-14.00	0.22-0.24	8.7-18	4.9-9.0	4.5-6.0	0.0-2.9	2.0-5.0	.32	.32	2	5	56
	8-18	2-20	20-60	27-50	1.25-1.55	1.40-4.00	0.10-0.16	16-36	11-33	5.1-7.3	3.0-5.9	0.5-2.0	.24	.24			
	18-30	2-20	20-60	35-70	1.25-1.55	1.40-4.00	0.10-0.16	16-36	11-33	5.6-7.8	3.0-5.9	0.2-1.0	.20	.20			
Bucklick-----	0-3	2-30	50-80	10-27	1.30-1.40	4.00-14.00	0.23-0.24	8.0-18	4.4-7.0	5.6-7.3	0.0-2.9	2.0-4.0	.32	.32	4	6	48
	3-16	2-20	20-70	30-60	1.30-1.40	4.00-14.00	0.10-0.16	13-27	6.0-10	5.6-7.3	3.0-5.9	0.5-2.0	.24	.24			
	16-45	1-40	10-60	40-80	1.30-1.40	4.00-14.00	0.06-0.12	22-33	16-30	5.6-7.3	6.0-9.0	0.2-1.0	.20	.20			
73151:																	
Caneyville---	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	2	5	56
	1-4	2-30	50-80	10-27	1.00-1.20	4.00-14.00	0.22-0.24	8.7-18	4.9-9.0	4.5-6.0	0.0-2.9	2.0-5.0	.32	.32			
	4-11	2-20	20-60	27-50	1.25-1.55	1.40-4.00	0.10-0.16	16-36	11-33	5.1-7.3	3.0-5.9	0.5-2.0	.24	.24			
	11-31	2-20	20-60	35-70	1.25-1.55	1.40-4.00	0.10-0.16	16-36	11-33	5.6-7.8	3.0-5.9	0.2-1.0	.20	.20			
Gasconade----	0-3	2-20	40-60	40-60	1.35-1.50	4.00-14.00	0.11-0.15	37-53	---	6.1-7.8	3.0-5.9	6.0-12	.15	.15	1	5	56
	3-16	2-40	20-60	35-70	1.45-1.70	1.40-4.00	0.04-0.10	27-46	---	6.1-7.8	3.0-5.9	2.0-10	.10	.24			
Bucklick-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	4	6	48
	1-6	2-20	50-80	10-27	1.30-1.40	4.00-14.00	0.22-0.24	8.0-18	4.4-7.0	5.6-7.3	0.0-2.9	2.0-4.0	.32	.32			
	6-31	2-20	20-70	35-70	1.30-1.40	4.00-14.00	0.10-0.16	13-27	6.0-10	5.6-7.3	3.0-5.9	0.5-2.0	.24	.24			
	31-47	1-40	10-60	40-80	1.30-1.40	4.00-14.00	0.06-0.12	22-33	16-30	5.6-7.3	6.0-9.0	0.2-1.0	.20	.20			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
									cation exchange capacity				Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
73152: Lily-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	2	5	56
	1-3	20-50	50-70	5-10	1.05-1.35	14.00-42.00	0.21-0.23	5.5-12	2.9-5.4	3.5-5.5	0.0-2.9	2.0-6.0	.28	.28			
	3-9	25-65	20-70	5-10	1.25-1.50	14.00-42.00	0.17-0.21	4.1-6.4	2.0-4.1	3.5-5.5	0.0-2.9	1.0-2.0	.28	.28			
	9-25	23-52	30-50	15-30	1.25-1.50	14.00-42.00	0.16-0.20	6.5-17	4.5-13	3.5-5.5	0.0-2.9	0.3-1.0	.17	.17			
Ramsey-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	1	3	86
	1-3	43-75	20-50	5-10	1.05-1.35	42.00-141.00	0.13-0.18	8.6-15	4.5-6.7	4.5-6.0	0.0-2.9	4.0-8.0	.20	.20			
	3-7	23-75	20-50	5-10	1.25-1.50	42.00-141.00	0.10-0.16	5.9-8.3	3.0-4.8	4.5-6.0	0.0-2.9	1.0-3.0	.17	.17			
	7-17	23-75	20-50	7-27	1.25-1.50	42.00-141.00	0.10-0.15	5.8-16	3.4-13	4.5-5.5	0.0-2.9	0.5-2.0	.17	.17			
73153: Lily-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	2	5	56
	1-4	43-75	20-50	5-10	1.05-1.35	14.00-42.00	0.13-0.18	5.5-12	2.9-5.4	3.5-5.5	0.0-2.9	2.0-6.0	.28	.28			
	4-11	25-65	20-70	5-10	1.25-1.50	14.00-42.00	0.17-0.21	4.1-6.4	2.0-4.1	3.5-5.5	0.0-2.9	1.0-2.0	.28	.28			
	11-28	23-52	30-50	15-30	1.25-1.50	14.00-42.00	0.16-0.20	6.5-17	4.5-13	3.5-5.5	0.0-2.9	0.3-0.9	.17	.17			
Ramsey-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	1	3	86
	1-3	43-75	20-50	5-10	1.05-1.35	42.00-141.00	0.13-0.18	8.6-15	4.5-6.7	4.5-6.0	0.0-2.9	2.0-8.0	.20	.20			
	3-7	43-75	20-50	5-10	1.25-1.50	42.00-141.00	0.10-0.16	5.9-8.3	3.0-4.8	4.5-6.0	0.0-2.9	1.0-3.0	.17	.17			
	7-17	23-75	20-50	7-27	1.25-1.50	42.00-141.00	0.10-0.15	5.8-16	3.4-13	4.5-5.5	0.0-2.9	0.5-2.0	.17	.17			
73154: Ramsey-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	1	3	86
	1-3	43-75	20-50	5-10	1.05-1.35	42.00-141.00	0.13-0.18	8.6-15	4.5-6.7	4.5-6.0	0.0-2.9	2.0-8.0	.20	.20			
	3-7	43-75	20-50	5-10	1.25-1.50	42.00-141.00	0.10-0.16	5.9-8.3	3.0-4.8	4.5-6.0	0.0-2.9	1.0-3.0	.17	.17			
	7-17	23-75	20-50	7-27	1.25-1.50	42.00-141.00	0.10-0.15	5.8-16	3.4-13	4.5-5.5	0.0-2.9	0.5-2.0	.17	.17			
Rock outcrop.																	
73155: Gasconade----	0-4	2-20	40-60	40-60	1.35-1.50	4.00-14.00	0.11-0.15	37-53	---	6.1-7.8	3.0-5.9	6.0-12	.10	.10	1	8	0
	4-13	2-40	20-60	35-75	1.45-1.70	1.40-4.00	0.04-0.10	27-46	---	6.1-7.8	3.0-5.9	2.0-10	.10	.15			
Rock outcrop.																	
73156: Alred-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	4	8	0
	1-6	10-45	50-80	5-15	1.20-1.45	4.00-14.00	0.09-0.15	4.4-19	2.3-11	4.5-6.0	0.0-2.9	1.0-10	.10	.28			
	6-11	10-45	50-80	5-15	1.25-1.45	4.00-14.00	0.12-0.17	3.7-7.6	1.6-3.9	4.5-6.0	0.0-2.9	0.5-2.0	.15	.32			
	11-31	10-40	40-70	10-27	1.40-1.55	4.00-14.00	0.06-0.15	3.2-9.7	1.7-6.4	4.5-5.5	0.0-2.9	0.2-1.0	.15	.32			
	31-79	1-30	5-40	45-95	1.50-1.65	0.42-1.40	0.07-0.09	9.8-46	6.7-53	5.1-6.5	3.0-5.9	0.1-1.0	.05	.10			
Gepp-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	4	8	0
	1-6	10-40	50-80	8-18	0.95-1.05	4.00-14.00	0.09-0.15	8.2-22	3.6-15	4.5-6.0	0.0-2.9	2.0-10	.10	.24			
	6-12	5-30	30-60	27-65	1.25-1.40	4.00-14.00	0.09-0.16	7.5-22	4.2-15	4.5-6.0	3.0-5.9	0.3-1.0	.15	.28			
	12-67	1-30	5-40	60-95	1.20-1.40	4.00-14.00	0.07-0.10	10-37	6.5-33	5.1-6.0	3.0-5.9	0.2-1.0	.05	.10			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
									cation exchange capacity				pH	Kw	Kf		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
73157: Captina-----	0-5	5-30	60-80	5-15	0.95-1.15	4.00-14.00	0.22-0.24	8.3-14	3.0-12	4.5-6.5	0.0-2.9	2.0-6.0	.43	.43	3	5	56
	5-25	2-20	50-80	20-35	1.25-1.45	4.00-14.00	0.17-0.21	8.3-20	5.4-17	4.5-5.5	0.0-2.9	0.3-1.0	.43	.43			
	25-31	2-30	50-80	20-35	1.55-1.75	0.42-1.40	0.02-0.08	9.3-21	6.5-14	3.5-5.5	0.0-2.9	0.1-0.3	.10	.43			
	31-78	2-45	10-60	35-70	1.45-1.65	1.40-4.00	0.02-0.08	5.7-26	4.4-22	3.5-5.5	3.0-5.9	0.1-0.3	.10	.20			
74644: Deible-----	0-10	5-15	60-80	10-27	1.30-1.45	4.00-14.00	0.22-0.24	6.0-20	4.0-18	4.5-7.8	0.1-2.9	1.0-4.0	.43	.43	3	5	56
	10-15	5-15	60-80	10-25	1.30-1.45	4.00-14.00	0.20-0.22	6.0-20	4.0-18	4.5-7.8	0.1-2.9	0.5-1.0	.43	.43			
	15-37	2-10	35-55	40-60	1.35-1.50	0.01-0.42	0.09-0.13	22-32	16-25	4.5-7.8	6.0-8.9	0.1-1.0	.32	.32			
	37-80	10-25	45-55	20-40	1.35-1.50	1.40-4.00	0.18-0.22	12-20	9.0-15	4.5-8.4	3.0-5.9	0.1-0.5	.37	.37			
74645: Higdon-----	0-8	2-20	50-80	10-20	1.20-1.45	4.00-14.00	0.22-0.24	11-16	4.6-10	5.1-7.3	0.0-2.9	2.0-4.0	.43	.43	5	5	56
	8-13	2-20	50-80	10-20	1.20-1.45	4.00-14.00	0.22-0.24	10-12	5.7-7.8	5.1-7.3	0.0-2.9	0.9-1.0	.49	.49			
	13-27	1-20	50-70	27-40	1.40-1.50	4.00-14.00	0.18-0.20	16-28	11-25	5.1-7.3	3.0-5.9	0.3-0.9	.37	.37			
	27-67	2-20	55-80	20-35	1.35-1.50	1.40-4.00	0.16-0.20	10-20	8.1-38	5.1-7.3	3.0-5.9	0.2-0.5	.49	.49			
74646: Cornwall-----	0-5	2-20	60-80	10-20	1.00-1.20	4.00-14.00	0.20-0.24	7.0-15	5.0-15	5.1-7.3	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	5-17	2-20	60-80	20-35	1.25-1.45	4.00-14.00	0.16-0.20	7.0-19	7.1-19	4.5-5.5	0.0-2.9	0.3-0.9	.43	.43			
	17-39	2-20	60-80	20-30	1.50-1.70	0.42-1.40	0.08-0.18	7.0-19	7.3-16	4.5-5.5	0.0-2.9	0.1-0.3	.55	.55			
	39-60	10-40	20-60	27-50	1.45-1.65	4.00-14.00	0.06-0.14	7.0-20	7.6-18	4.5-5.5	0.0-2.9	0.1-0.3	.17	.37			
74647: Cornwall-----	0-6	2-20	60-80	10-20	1.00-1.20	4.00-14.00	0.20-0.24	7.0-15	5.0-15	5.1-7.3	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	6-34	2-20	60-80	27-35	1.25-1.45	4.00-14.00	0.16-0.20	7.0-19	7.1-19	4.5-5.5	0.0-2.9	0.3-1.0	.43	.43			
	34-52	2-20	60-80	20-30	1.50-1.70	0.42-1.40	0.08-0.20	7.0-19	7.3-16	4.5-5.5	0.0-2.9	0.1-0.3	.55	.55			
	52-60	10-40	20-60	27-50	1.45-1.65	4.00-14.00	0.06-0.14	7.0-20	7.6-18	4.5-5.5	0.0-2.9	0.1-0.3	.17	.37			
74648: Aslinger-----	0-6	4-35	58-76	9-19	1.35-1.45	4.00-14.00	0.18-0.24	7.0-15	4.0-8.0	4.8-6.4	0.0-2.9	1.0-4.0	.32	.37	5	5	56
	6-22	5-26	50-62	21-35	1.30-1.45	4.00-14.00	0.14-0.19	8.0-20	5.0-17	4.3-5.5	0.0-2.9	0.2-1.0	.32	.43			
	22-46	11-35	32-64	26-39	1.30-1.45	1.40-4.00	0.03-0.07	8.0-15	6.0-11	4.6-5.1	0.0-2.9	0.1-0.3	.28	.43			
	46-80	6-30	23-30	47-68	1.60-1.90	4.00-14.00	0.02-0.05	11-16	7.0-12	4.6-5.0	3.0-5.9	0.1-0.3	.20	.28			
74649: Aslinger-----	0-3	10-40	50-80	10-20	0.90-1.10	4.00-14.00	0.18-0.22	8.3-15	3.3-8.8	4.5-6.5	0.0-2.9	2.0-4.0	.37	.37	4	5	56
	3-8	10-40	50-80	10-20	0.90-1.10	4.00-14.00	0.18-0.22	5.8-11	3.0-7.4	4.5-6.5	0.0-2.9	0.5-2.0	.37	.49			
	8-20	5-20	45-70	20-35	1.25-1.45	4.00-14.00	0.08-0.16	10-17	6.8-14	4.5-6.0	0.0-2.9	0.2-1.0	.43	.43			
	20-39	10-45	45-70	12-27	1.40-1.70	1.40-4.00	0.01-0.05	6.2-14	4.7-11	4.5-5.5	0.0-2.9	0.2-0.3	.20	.43			
	39-52	10-45	25-50	18-35	1.30-1.60	1.40-4.00	0.05-0.13	5.2-12	4.0-9.3	4.5-5.5	0.0-2.9	0.2-0.3	.15	.32			
	52-80	5-45	15-50	35-55	1.30-1.60	1.40-4.00	0.02-0.13	9.8-23	7.4-19	3.5-5.5	3.0-5.9	0.2-0.3	.10	.20			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
									cation exchange capacity				Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
74649:																	
Waben-----	0-6	5-40	50-80	10-15	1.20-1.50	14.00-42.00	0.09-0.13	5.0-15	4.0-12	5.1-6.5	0.0-2.9	1.0-3.0	.28	.43	4	8	0
	6-15	5-40	40-80	12-22	1.20-1.50	14.00-42.00	0.05-0.13	5.0-15	4.0-12	4.5-6.0	0.0-2.9	0.5-1.0	.15	.49			
	15-54	20-52	28-65	15-27	1.30-1.60	14.00-42.00	0.05-0.15	5.0-15	4.0-12	4.5-5.5	0.0-2.9	0.5-1.0	.10	.32			
	54-80	20-50	20-50	27-40	1.30-1.60	14.00-42.00	0.05-0.15	5.0-15	4.0-12	4.5-5.5	0.0-2.9	0.0-0.5	.10	.24			
74650:																	
Higdon-----	0-10	5-20	60-80	12-27	1.30-1.50	4.00-14.00	0.22-0.24	10-15	7.0-18	4.5-6.5	0.1-2.9	1.2-3.0	.37	.37	5	5	56
	10-19	5-20	60-80	12-27	1.30-1.50	4.00-14.00	0.22-0.24	5.0-15	3.0-12	5.6-6.5	0.1-2.9	0.2-1.0	.43	.43			
	19-80	5-18	55-75	20-35	1.30-1.50	1.40-4.00	0.18-0.20	10-20	8.0-18	6.1-7.3	3.0-5.9	0.2-0.8	.43	.43			
74684:																	
Racoon-----	0-4	5-20	60-80	10-27	1.30-1.50	1.40-4.00	0.22-0.24	13-17	0.0-12	5.1-7.3	0.0-2.9	2.0-6.0	.37	.37	5	5	56
	4-26	5-20	60-80	10-27	1.30-1.50	1.40-4.00	0.22-0.24	9.8-14	0.0-9.8	5.1-7.3	0.0-2.9	0.5-1.0	.49	.49			
	26-58	5-35	40-80	20-35	1.35-1.50	1.40-4.00	0.18-0.22	9.5-21	0.0-17	5.1-7.3	3.0-5.9	0.0-0.5	.43	.43			
	58-80	1-50	30-80	15-27	1.35-1.60	0.42-1.40	0.18-0.22	8.6-13	0.0-11	5.6-7.3	3.0-5.9	0.0-0.2	.43	.43			
75381:																	
Bearthicket--	0-6	2-40	50-85	10-20	1.20-1.40	4.00-14.00	0.22-0.24	8.1-13	3.6-9.2	5.1-7.3	0.0-2.9	1.0-4.0	.49	.49	5	5	56
	6-19	2-40	50-85	10-20	1.20-1.50	4.00-14.00	0.22-0.24	7.9-12	4.0-8.0	5.1-7.3	0.0-2.9	0.5-2.0	.55	.55			
	19-45	2-40	50-80	15-30	1.20-1.50	4.00-14.00	0.20-0.22	6.6-14	3.9-8.1	5.1-7.3	0.0-2.9	0.2-1.0	.49	.49			
	45-64	2-40	40-80	10-25	1.20-1.50	4.00-14.00	0.18-0.22	5.9-12	5.4-10	5.1-7.3	0.0-2.9	0.2-0.5	.37	.37			
	64-80	40-80	10-50	5-20	1.20-1.50	4.00-14.00	0.07-0.13	4.7-6.6	5.6-6.0	5.6-7.3	0.0-2.9	0.2-0.5	.15	.15			
75395:																	
Jamesfin----	0-10	2-5	65-80	10-27	1.20-1.40	4.00-14.00	0.22-0.24	6.0-20	4.0-18	5.6-7.8	0.1-2.9	2.0-4.0	.43	.43	5	5	56
	10-60	2-10	65-80	12-30	1.25-1.50	4.00-14.00	0.18-0.22	6.0-20	5.0-19	4.5-7.8	0.1-2.9	0.5-2.0	.43	.43			
75408:																	
Secesh-----	0-8	20-60	35-65	10-20	1.10-1.30	4.00-14.00	0.16-0.20	8.0-14	10-16	5.6-7.3	0.0-2.9	1.0-4.0	.32	.32	5	5	56
	8-11	10-60	20-65	10-30	1.20-1.40	4.00-14.00	0.13-0.19	8.0-14	10-16	5.1-6.5	0.0-2.9	0.5-1.0	.32	.43			
	11-27	20-65	15-70	15-35	1.20-1.40	4.00-14.00	0.09-0.14	8.0-14	12-18	5.1-6.0	0.0-2.9	0.2-0.5	.32	.43			
	27-80	25-65	5-60	15-45	1.30-1.50	4.00-14.00	0.05-0.09	8.0-14	12-18	5.1-6.0	0.0-2.9	0.2-0.5	.24	.32			
75409:																	
Relfe-----	0-7	50-80	10-45	4-10	1.10-1.50	42.00-141.00	0.11-0.15	5.4-12	5.4-10	5.6-7.3	0.0-2.9	1.0-4.0	.05	.05	5	8	0
	7-64	75-98	2-35	1-10	1.10-1.50	42.00-141.00	0.02-0.08	1.4-6.3	0.5-4.3	5.6-7.3	0.0-2.9	0.0-0.7	.02	.10			
75410:																	
Relfe-----	0-6	52-80	10-40	5-10	1.10-1.50	42.00-141.00	0.08-0.12	5.4-12	5.4-10	5.6-7.3	0.0-2.9	1.0-4.0	.05	.05	5	8	0
	6-64	75-98	2-20	1-10	1.10-1.50	42.00-141.00	0.02-0.08	1.4-6.3	0.5-4.3	5.6-6.5	0.0-2.9	0.0-0.7	.02	.10			
75411:																	
Tilk-----	0-8	45-80	20-50	5-15	1.00-1.30	14.00-42.00	0.03-0.11	7.8-22	3.7-18	5.1-6.5	0.0-2.9	2.0-10	.10	.20	5	8	0
	8-16	45-80	20-50	5-15	1.00-1.30	14.00-42.00	0.04-0.14	4.7-7.1	1.8-3.8	4.5-6.0	0.0-2.9	0.9-2.0	.10	.28			
	16-47	35-75	20-50	7-20	1.25-1.50	14.00-42.00	0.04-0.14	3.3-8.0	1.0-5.9	4.5-6.0	0.0-2.9	0.2-1.0	.15	.32			
	47-70	52-85	5-35	5-15	1.35-1.60	14.00-42.00	0.02-0.10	2.4-8.6	0.5-6.2	5.1-6.0	0.0-2.9	0.0-0.5	.02	.17			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
									cation exchange capacity				Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
75416: Gladden-----	0-5	35-52	33-50	10-15	0.95-1.15	4.00-14.00	0.18-0.22	7.5-11	0.0-9.8	5.6-7.3	0.0-2.9	1.0-3.0	.37	.37	4	3	86
	5-26	20-52	33-70	10-15	0.95-1.15	4.00-14.00	0.15-0.22	6.0-8.5	0.0-6.2	5.6-7.3	0.0-2.9	0.5-1.0	.37	.37			
	26-58	30-75	20-50	5-20	1.25-1.55	4.00-14.00	0.12-0.18	2.9-12	0.0-12	5.6-7.3	0.0-2.9	0.1-1.0	.32	.32			
	58-77	70-98	2-25	1-10	1.45-1.55	42.00-140.00	0.02-0.12	1.0-4.3	0.0-1.1	5.1-6.5	0.0-2.9	0.0-0.2	.10	.10			
77000: Killarney----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	4	8	0
	1-5	10-45	50-80	5-15	0.95-1.10	4.00-14.00	0.09-0.15	7.5-10	2.6-7.6	4.5-6.0	0.0-2.9	3.0-6.0	.10	.43			
	5-16	10-45	50-80	5-15	0.95-1.10	4.00-14.00	0.12-0.20	3.5-5.9	1.6-3.0	4.5-6.0	0.0-2.9	0.3-2.0	.15	.55			
	16-32	10-40	50-75	10-27	1.15-1.45	1.40-4.00	0.08-0.14	4.2-11	2.3-8.0	4.5-5.5	0.0-2.9	0.2-0.7	.15	.55			
	32-48	20-45	40-60	10-27	1.55-1.75	0.01-0.42	0.02-0.06	4.9-10	4.0-7.6	3.5-5.0	0.0-2.9	0.0-0.2	.15	.49			
	48-80	20-50	30-50	15-40	1.45-1.65	0.14-4.00	0.03-0.07	6.3-12	4.3-10	4.5-5.5	0.0-2.9	0.0-0.3	.20	.37			
Frenchmill---	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	5	8	0
	1-6	10-45	50-80	5-15	1.10-1.40	4.00-14.00	0.09-0.15	5.6-14	2.9-10	4.5-6.0	0.0-2.9	1.0-10	.05	.24			
	6-19	10-45	45-80	5-15	1.20-1.50	4.00-14.00	0.12-0.20	3.7-8.1	2.1-3.9	4.5-5.5	0.0-2.9	0.5-2.0	.32	.37			
	19-27	10-40	50-70	10-27	1.20-1.50	4.00-14.00	0.08-0.14	4.7-13	2.6-8.3	4.5-5.5	0.0-2.9	0.2-0.9	.15	.43			
	27-58	23-50	30-50	12-30	1.30-1.55	4.00-14.00	0.06-0.12	6.2-25	4.2-23	4.5-5.5	0.0-2.9	0.1-0.3	.15	.32			
	58-80	23-60	15-50	20-40	1.20-1.50	4.00-14.00	0.10-0.16	9.3-18	7.4-13	4.5-5.5	0.0-2.9	0.1-0.3	.15	.28			
77001: Loughboro----	0-4	5-30	60-80	10-20	1.20-1.40	4.00-14.00	0.22-0.24	10-14	0.0-12	4.5-5.5	0.0-2.9	2.0-5.0	.55	.55	3	5	56
	4-12	5-30	60-80	10-20	1.30-1.60	4.00-14.00	0.22-0.24	6.7-9.4	0.0-7.2	4.5-5.5	0.0-2.9	0.3-1.0	.64	.64			
	12-17	2-20	50-70	27-40	1.30-1.50	4.00-14.00	0.10-0.18	14-29	0.0-22	3.5-5.5	6.0-8.9	0.2-0.5	.37	.37			
	17-45	2-20	50-70	35-50	1.30-1.50	0.42-1.40	0.19-0.21	14-29	0.0-22	3.5-5.5	6.0-8.9	0.2-0.5	.37	.37			
	45-67	5-35	50-70	20-35	1.50-1.65	1.40-4.00	0.17-0.21	12-19	0.0-11	3.5-5.5	3.0-5.9	0.1-0.3	.43	.43			
77002: Delassus-----	0-3	5-40	50-80	5-15	1.20-1.40	4.00-14.00	0.20-0.24	6.9-11	5.0-12	4.5-6.0	0.0-2.9	2.0-5.0	.37	.37	3	5	56
	3-7	5-40	50-80	10-20	1.20-1.40	4.00-14.00	0.20-0.24	6.0-15	3.0-8.0	4.5-6.0	0.0-2.9	0.5-2.0	.37	.37			
	7-31	5-40	40-70	18-35	1.30-1.50	4.00-14.00	0.15-0.21	9.2-20	5.0-15	3.5-5.5	0.0-2.9	0.3-1.0	.37	.43			
	31-61	20-60	20-70	7-27	1.60-1.80	0.01-0.42	0.04-0.08	7.1-13	3.0-15	3.5-5.5	0.0-2.9	0.1-0.3	.37	.43			
77003: Delassus-----	0-8	5-40	50-80	5-15	1.20-1.40	4.00-14.00	0.17-0.22	6.9-11	3.0-5.4	4.5-6.0	0.0-2.9	2.0-5.0	.24	.37	3	5	56
	8-13	5-40	50-80	10-20	1.20-1.40	4.00-14.00	0.17-0.23	6.0-15	3.0-5.0	4.5-6.0	0.0-2.9	0.5-2.0	.24	.37			
	13-20	5-40	40-70	18-35	1.30-1.50	4.00-14.00	0.14-0.20	7.4-20	3.0-20	3.5-5.5	0.0-2.9	0.3-1.0	.20	.37			
	20-59	20-60	20-70	7-27	1.60-1.80	0.01-0.42	0.03-0.07	6.0-13	3.0-13	3.5-5.5	0.0-2.9	0.1-0.3	.28	.43			
	59-78	5-40	35-70	15-35	1.30-1.50	4.00-14.00	0.04-0.10	9.2-20	5.0-20	3.5-5.5	0.0-2.9	0.1-0.3	.10	.32			
77004: Irondale-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	2	8	0
	1-4	5-45	50-80	5-15	1.00-1.20	4.00-14.00	0.15-0.21	7.3-38	3.0-9.3	4.5-6.0	0.0-2.9	4.0-10	.17	.37			
	4-9	5-45	50-80	5-15	1.10-1.40	4.00-14.00	0.12-0.20	4.8-21	2.6-5.3	3.5-6.0	0.0-2.9	1.0-3.0	.17	.37			
	9-15	2-45	50-80	10-27	1.10-1.50	4.00-14.00	0.08-0.14	5.6-19	2.3-12	4.5-5.5	0.0-2.9	0.7-1.0	.20	.43			
	15-22	10-45	35-60	18-35	1.20-1.50	4.00-14.00	0.06-0.12	5.6-19	3.6-12	4.5-5.5	0.0-2.9	0.2-1.0	.15	.28			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
									cation exchange capacity				Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
77005: Hassler-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	3	5	56
	1-6	15-45	50-80	5-15	1.00-1.20	4.00-14.00	0.20-0.24	12-22	4.9-16	4.5-6.0	0.0-2.9	2.0-10	.20	.24			
	6-11	15-45	50-80	5-15	1.10-1.30	4.00-14.00	0.20-0.24	5.5-10	2.7-8.8	4.5-6.0	0.0-2.9	0.5-2.0	.28	.32			
	11-20	5-40	40-65	18-35	1.30-1.50	1.40-4.00	0.14-0.20	7.4-22	4.8-17	4.5-5.5	0.0-2.9	0.2-1.0	.24	.37			
	20-34	40-52	30-50	15-25	1.30-1.50	1.40-4.00	0.10-0.18	8.5-15	5.5-12	4.5-5.5	0.0-2.9	0.1-0.7	.15	.32			
	34-42	52-75	10-40	5-15	1.35-1.60	4.00-14.00	0.06-0.12	7.4-15	4.5-12	4.5-5.5	0.0-2.9	0.1-0.2	.10	.32			
Syenite-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	2	8	0
	1-4	15-45	50-80	5-15	1.00-1.20	4.00-14.00	0.20-0.24	8.0-22	3.0-16	4.5-6.0	0.0-2.9	2.0-10	.28	.32			
	4-9	15-45	50-80	5-15	1.10-1.30	4.00-14.00	0.20-0.24	5.5-10	2.7-8.8	4.5-6.0	0.0-2.9	0.5-2.0	.28	.43			
	9-19	5-40	40-65	18-35	1.30-1.50	1.40-4.00	0.14-0.20	9.5-21	6.5-17	4.5-5.5	0.0-2.9	0.2-0.9	.20	.37			
	19-29	40-52	30-50	15-25	1.30-1.50	1.40-4.00	0.10-0.18	7.6-14	5.5-12	4.5-5.5	0.0-2.9	0.1-0.7	.28	.37			
77006: Roselle-----	0-7	15-40	50-70	10-20	1.00-1.20	4.00-14.00	0.21-0.24	6.3-16	3.4-12	5.6-6.5	0.0-2.9	2.0-5.0	.43	.43	5	5	56
	7-15	10-25	50-70	18-30	1.20-1.40	4.00-14.00	0.18-0.21	7.8-18	5.0-13	5.1-6.5	0.0-2.9	0.3-1.0	.43	.43			
	15-57	23-52	28-50	15-30	1.30-1.50	0.40-14.00	0.15-0.19	7.0-14	4.7-9.7	4.5-5.5	0.0-2.9	0.2-0.5	.28	.32			
	57-80	52-80	10-30	10-20	1.50-1.60	14.00-42.00	0.10-0.13	5.8-11	3.5-7.0	4.5-5.5	0.0-2.9	0.1-0.2	.20	.20			
77007: Taumsauk-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	1	8	0
	1-5	5-45	50-80	10-20	1.10-1.30	4.00-14.00	0.15-0.21	5.0-12	2.0-9.0	4.5-6.0	0.0-2.9	2.0-8.0	.20	.37			
	5-17	2-45	40-80	15-35	1.30-1.50	4.00-14.00	0.06-0.14	7.0-18	4.0-15	3.5-5.5	0.0-2.9	0.5-3.0	.10	.37			
Irondale-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	2	8	0
	1-5	5-45	50-80	5-15	1.00-1.20	4.00-14.00	0.09-0.15	7.3-38	3.0-9.3	4.5-6.0	0.0-2.9	4.0-10	.15	.43			
	5-10	5-45	50-80	5-15	1.10-1.40	4.00-14.00	0.12-0.20	4.8-21	2.6-7.0	3.5-6.0	0.0-2.9	1.0-3.0	.24	.55			
	10-17	2-45	50-80	10-27	1.10-1.50	4.00-14.00	0.08-0.14	5.6-19	2.3-12	4.5-5.5	0.0-2.9	0.5-2.0	.24	.49			
	17-35	10-45	35-60	18-35	1.20-1.50	1.40-4.00	0.06-0.12	5.6-19	3.6-12	4.5-5.5	0.0-2.9	0.2-1.0	.05	.32			
Rock outcrop.																	
77008: Hassler-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	3	5	56
	1-3	15-45	50-80	5-15	1.00-1.20	4.00-14.00	0.20-0.24	12-22	4.9-16	4.5-6.0	0.0-2.9	2.0-10	.10	.32			
	3-9	15-45	50-80	5-15	1.10-1.30	4.00-14.00	0.20-0.24	5.5-10	2.7-8.8	4.5-6.0	0.0-2.9	0.5-2.0	.10	.43			
	9-24	5-40	40-65	18-35	1.30-1.50	1.40-4.00	0.14-0.20	9.5-21	6.5-16	4.5-5.5	0.0-2.9	0.2-1.0	.10	.37			
	24-31	40-52	30-50	15-27	1.30-1.50	1.40-4.00	0.10-0.18	8.5-14	5.5-12	4.5-5.5	0.0-2.9	0.1-0.5	.10	.37			
	31-48	52-75	10-40	5-15	1.35-1.60	4.00-14.00	0.06-0.12	7.4-15	4.5-12	4.5-5.5	0.0-2.9	0.1-0.2	.10	.24			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Cation exchange capacity	Effective	Soil reaction	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
									cation exchange capacity				pH	Kw	Kf		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	meq/100 g	meq/100 g	pH	Pct	Pct					
77009:																	
Trackler-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	3	5	56
	1-2	2-20	65-85	10-20	1.00-1.20	4.00-14.00	0.21-0.24	10-24	4.6-12	4.5-6.0	0.0-2.9	3.0-10	.37	.37			
	2-8	1-20	65-85	10-20	1.10-1.50	4.00-14.00	0.21-0.24	6.4-9.8	2.9-6.8	4.5-6.0	0.0-2.9	1.0-2.0	.49	.49			
	8-14	1-25	50-75	15-35	1.30-1.50	1.40-4.00	0.15-0.21	7.4-18	4.5-15	4.5-5.5	0.0-2.9	0.3-1.0	.43	.43			
	14-23	10-25	30-60	25-45	1.40-1.60	1.40-4.00	0.04-0.10	12-22	8.3-18	4.5-5.5	0.0-2.9	0.2-0.9	.17	.37			
	23-45	23-80	10-50	5-27	1.40-1.60	1.40-4.00	0.04-0.10	8.0-28	5.0-25	4.5-5.5	0.0-2.9	0.2-0.7	.10	.37			
77010:																	
Trackler-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	2	8	0
	1-4	2-20	65-85	10-20	1.00-1.20	4.00-14.00	0.21-0.24	10-24	4.6-12	4.5-6.0	0.0-2.9	2.0-10	.37	.37			
	4-8	1-20	65-85	10-20	1.10-1.50	4.00-14.00	0.21-0.24	6.4-9.8	2.9-6.8	4.5-6.0	0.0-2.9	1.0-2.0	.55	.55			
	8-13	1-25	50-75	15-35	1.30-1.50	1.40-4.00	0.15-0.21	7.4-18	4.5-15	4.5-5.5	0.0-2.9	0.3-1.0	.49	.49			
	13-25	10-25	30-60	25-45	1.40-1.60	1.40-4.00	0.04-0.10	12-22	8.3-18	4.5-5.5	0.0-2.9	0.2-1.0	.37	.37			
	25-44	23-80	10-50	5-27	1.40-1.60	1.40-4.00	0.04-0.10	8.0-28	5.0-25	4.5-5.5	0.0-2.9	0.2-0.5	.10	.32			
Irondale-----	0-1	---	---	---	---	---	---	---	---	---	---	---	---	---	2	8	0
	1-5	5-45	50-80	5-15	1.00-1.20	4.00-14.00	0.15-0.21	7.3-38	3.0-9.3	4.5-6.0	0.0-2.9	3.0-10	.20	.37			
	5-11	5-45	50-80	5-15	1.10-1.40	4.00-14.00	0.12-0.20	4.8-21	2.6-7.0	3.5-6.0	0.0-2.9	1.0-2.0	.20	.49			
	11-15	2-45	50-80	10-27	1.10-1.50	4.00-14.00	0.08-0.14	5.6-19	2.3-12	4.5-5.5	0.0-2.9	0.5-1.0	.10	.43			
	15-24	10-45	35-60	18-35	1.20-1.50	4.00-14.00	0.06-0.12	5.6-19	3.6-12	4.5-5.5	0.0-2.9	0.2-1.0	.05	.37			
78250:																	
Skrainka-----	0-6	5-35	50-75	15-27	1.10-1.30	4.00-14.00	0.20-0.24	9.8-16	6.4-11	5.1-7.3	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	6-33	5-35	20-60	35-60	1.25-1.55	1.40-4.00	0.10-0.18	16-41	12-33	5.1-7.8	3.0-5.9	0.3-1.0	.24	.24			
	33-57	23-52	28-50	15-35	1.30-1.60	4.00-14.00	0.15-0.19	24-38	25-30	5.1-8.4	3.0-5.9	0.2-0.5	.32	.32			
	57-80	52-75	23-40	2-20	1.30-1.60	14.00-42.00	0.11-0.13	20-46	22-52	6.6-8.4	0.0-2.9	0.1-0.5	.32	.32			
78251:																	
Skrainka-----	0-4	30-50	35-50	15-27	1.10-1.30	4.00-14.00	0.18-0.22	12-36	8.8-20	5.1-6.5	0.0-2.9	2.0-4.0	.17	.24	5	6	48
	4-31	5-35	20-60	35-60	1.25-1.55	1.40-4.00	0.10-0.18	16-41	12-33	5.1-7.8	3.0-5.9	0.3-0.9	.24	.24			
	31-54	23-52	28-50	15-35	1.30-1.60	4.00-14.00	0.15-0.19	24-38	24-30	5.1-8.4	3.0-5.9	0.2-0.3	.37	.37			
	54-80	52-75	23-40	2-20	1.30-1.60	14.00-42.00	0.11-0.13	20-46	22-52	6.6-8.4	0.0-2.9	0.2-0.2	.37	.37			
99001:																	
Water.																	
99006:																	
Psamments-----	0-80	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
99008:																	
Udorthents----	0-60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dumps-----	0-60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 19.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
73055: Alred-----	C	Jan-Dec	---	---	---	None
Rueter-----	B	Jan-Dec	---	---	---	None
73139: Poynor-----	B	Jan-Dec	---	---	---	None
Clarksville-----	B	Jan-Dec	---	---	---	None
Scholten-----	C	Jan-Apr	1.0-2.4	1.2-2.5	---	None
		May-Nov	---	---	---	None
		Dec	1.0-2.4	1.2-2.5	---	None
73140: Clarksville-----	B	Jan-Dec	---	---	---	None
Scholten-----	C	Jan-Apr	1.2-2.9	1.3-3.0	---	None
		May-Nov	---	---	---	None
		Dec	1.2-2.9	1.3-3.0	---	None
73141, 73142: Firebaugh-----	C	Jan-Apr	1.5-2.2	2.5-3.2	---	None
		May-Nov	---	---	---	None
		Dec	1.5-2.2	2.5-3.2	---	None
73143, 73144: Courtois-----	B	Jan-Dec	---	---	---	None
73145: Crider-----	B	Jan-Dec	---	---	---	None
73146: Marquand-----	C	Jan-Apr	2.0-2.5	2.5-3.0	---	None
		May-Nov	---	---	---	None
		Dec	2.0-2.5	2.5-3.0	---	None
73147: Fourche-----	B	Jan-Apr	2.0-3.0	>6.0	---	None
		May-Nov	---	---	---	None
		Dec	2.0-3.0	>6.0	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
73148: Jonca-----	C	Jan-Apr	2.0-3.0	2.5-3.5	---	None
May-Nov		---	---	---	None	
Dec		2.0-3.0	2.5-3.5	---	None	
73149, 73150: Caneyville-----	C	Jan-Dec	---	---	---	None
Bucklick-----	C	Jan-Dec	---	---	---	None
73151: Caneyville-----	C	Jan-Dec	---	---	---	None
Gasconade-----	D	Jan-Dec	---	---	---	None
Bucklick-----	C	Jan-Dec	---	---	---	None
73152, 73153: Lily-----	B	Jan-Dec	---	---	---	None
Ramsey-----	D	Jan-Dec	---	---	---	None
73154: Ramsey-----	D	Jan-Dec	---	---	---	None
Rock outcrop.						
73155: Gasconade-----	D	Jan-Dec	---	---	---	None
Rock outcrop.						
73156: Alred-----	B	Jan-Dec	---	---	---	None
Gepp-----	B	Jan-Dec	---	---	---	None
73157: Captina-----	C	Jan-Apr	1.5-3.0	2.0-3.5	---	None
May-Nov		---	---	---	None	
Dec		1.5-3.0	2.0-3.5	---	None	
74644: Deible-----	D	Jan-May	0.0-1.0	2.5-3.3	---	None
Jun-Oct		---	---	---	None	
Nov-Dec		0.0-1.0	2.5-3.3	---	None	

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
74645: Higdon-----	C	Jan-May	1.0-2.0	>6.0	---	None
Jun-Oct		---	---	---	None	
Nov-Dec		1.0-2.0	>6.0	---	None	
74646: Cornwall-----	C	Jan-Apr	1.5-3.0	2.0-3.5	---	None
May-Nov		---	---	---	None	
Dec		1.5-3.0	2.0-3.5	---	None	
74647: Cornwall-----	C	Jan-Apr	1.5-3.0	2.0-3.5	---	None
May-Nov		---	---	---	None	
Dec		1.5-3.0	2.0-3.5	---	None	
74648: Aslinger-----	B	Jan-May	1.5-2.5	2.5-3.5	---	None
Jun-Oct		---	---	---	None	
Nov-Dec		1.5-2.5	2.5-3.5	---	None	
74649: Aslinger-----	C	Jan-Apr	1.5-2.5	2.5-3.0	---	None
May-Nov		---	---	---	None	
Dec		1.5-2.5	2.5-3.0	---	None	
Waben-----	B	Jan-Dec	---	---	---	None
74650: Higdon-----	C	Jan-Apr	1.0-2.5	5.9-5.9	Brief	Occasional
May		1.0-2.5	5.9-5.9	Brief	Rare	
Jun-Oct		---	---	Brief	Rare	
Nov-Dec		1.0-2.5	5.9-5.9	Brief	Occasional	
74684: Raccoon-----	C/D	Jan-May	0.0	>6.0	Very brief	Rare
Jun-Oct		---	---	Very brief	Very rare	
Nov		---	---	Very brief	Rare	
Dec		0.0	>6.0	Very brief	Rare	
75381: Bearthicket-----	B	Jan-May	---	---	Very brief	Rare
Jun-Oct		---	---	Very brief	Very rare	
Nov-Dec		---	---	Very brief	Rare	
75395: Jamesfin-----	B	Jan-Apr	4.0-6.0	>6.0	Brief	Occasional
May-Jun		---	---	Brief	Occasional	
Jul-Sep		---	---	Brief	Rare	
Oct		---	---	Brief	Occasional	
Nov-Dec		4.0-6.0	>6.0	Brief	Occasional	

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
75408: Secesh-----	B	Jan-May	---	---	Very brief	Rare
		Jun-Oct	---	---	Very brief	Very rare
		Nov-Dec	---	---	Very brief	Rare
75409: Relfe-----	A	Jan-May	---	---	Very brief	Occasional
		Jun-Oct	---	---	Very brief	Rare
		Nov-Dec	---	---	Very brief	Occasional
75410: Relfe-----	A	Jan-May	---	---	Very brief	Frequent
		Jun-Oct	---	---	Very brief	Occasional
		Nov-Dec	---	---	Very brief	Frequent
75411: Tilk-----	A	Jan-May	---	---	Very brief	Rare
		Jun-Oct	---	---	Very brief	Very rare
		Nov-Dec	---	---	Very brief	Rare
75416: Gladden-----	B	Jan-May	---	---	Very brief	Occasional
		Jun-Oct	---	---	Very brief	Rare
		Nov-Dec	---	---	Very brief	Occasional
77000: Killarney-----	C	Jan-Apr	2.0-3.0	2.5-3.5	---	None
		May-Nov	---	---	---	None
		Dec	2.0-3.0	2.5-3.5	---	None
Frenchmill-----	B	Jan-Dec	---	---	---	None
77001: Loughboro-----	C	Jan-May	1.0-1.5	2.0-4.0	---	None
		Jun-Nov	---	---	---	None
		Dec	1.0-1.5	2.0-4.0	---	None
77002, 77003: Delassus-----	C	Jan-Apr	1.8-2.5	2.0-3.0	---	None
		May-Nov	---	---	---	None
		Dec	1.8-2.5	2.0-3.0	---	None
77004: Irondale-----	C	Jan-Dec	---	---	---	None
77005: Hassler-----	C	Jan-Apr	1.8-2.5	2.0-3.0	---	None
		May-Nov	---	---	---	None
		Dec	1.8-2.5	2.0-3.0	---	None
Syenite-----	C	Jan-Dec	---	---	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
77006: Roselle-----	C	Jan-Dec	---	---	---	None
77007: Taumsauk-----	D	Jan-Dec	---	---	---	None
Irondale-----	C	Jan-Dec	---	---	---	None
Rock outcrop.						
77008: Hassler-----	C	Jan-Apr	1.8-2.5	2.0-3.0	---	None
		May-Nov	---	---	---	None
		Dec	1.8-2.5	2.0-3.0	---	None
77009: Trackler-----	C	Jan-Apr	1.8-2.5	3.0-4.0	---	None
		May-Nov	---	---	---	None
		Dec	1.8-2.5	3.0-4.0	---	None
77010: Trackler-----	C	Jan-Apr	1.8-2.5	3.0-4.0	---	None
		May-Nov	---	---	---	None
		Dec	1.8-2.5	3.0-4.0	---	None
Irondale-----	C	Jan-Dec	---	---	---	None
78250, 78251: Skrainka-----	B	Jan-Dec	---	---	---	None
99001: Water.						
99006: Psamments.						
99008. Udorthents						
Dumps						

Table 20.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Kind	Restrictive layer			Potential for frost action	Risk of corrosion	
		Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
73055: Alred-----	Strongly contrasting textural stratification	15-39	---	Noncemented	Moderate	Moderate	High
Rueter-----	---	---	---	---	Moderate	Moderate	High
73139: Poynor-----	Strongly contrasting textural stratification	14-40	---	Noncemented	Moderate	High	High
Clarksville-----	---	---	---	---	Moderate	Moderate	High
Scholten-----	Fragipan	14-30	6-35	Noncemented	Moderate	High	High
73140: Clarksville-----	---	---	---	---	Moderate	Moderate	High
Scholten-----	Fragipan	16-36	6-35	Noncemented	Moderate	High	High
73141, 73142: Firebaugh-----	---	---	---	---	High	High	High
73143, 73144: Courtois-----	---	---	---	---	Moderate	High	Moderate
73145: Crider-----	---	---	---	---	High	Moderate	Moderate
73146: Marquand-----	---	---	---	---	High	High	High
73147: Fourche-----	---	---	---	---	High	Moderate	High
73148: Jonca-----	Fragipan	24-38	10-30	Noncemented	Moderate	High	High
	Bedrock (lithic)	60-80	---	Indurated			
73149, 73150: Caneyville-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
Bucklick-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	High	Moderate
73151: Caneyville-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
Gasconade-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	High	Low
Bucklick-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	High	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion		
	Kind	Depth to top	Thickness		Hardness	Uncoated steel	Concrete
		In	In				
73152, 73153: Lily-----	Bedrock (lithic)	20-40	---	Very strongly cemented	Moderate	High	High
Ramsey-----	Bedrock (lithic)	4-20	---	Very strongly cemented	Moderate	Moderate	High
73154: Ramsey-----	Bedrock (lithic)	4-20	---	Very strongly cemented	Moderate	Moderate	High
Rock outcrop.							
73155: Gasconade-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	High	Low
Rock outcrop-----	Bedrock (lithic)	0-4	---	Indurated	None	---	---
73156: Alred-----	Strongly contrasting textural stratification	14-40	---	Noncemented	Moderate	High	Moderate
Gepp-----	---	---	---	---	Moderate	High	Moderate
73157: Captina-----	Fragipan	20-36	6-32	Noncemented	High	High	High
74644: Deible-----	Abrupt textural change	11-22	---	Noncemented	Moderate	High	High
74645: Higdon-----	---	---	---	---	High	High	Moderate
74646, 74647: Cornwall-----	---	---	---	---	High	High	Moderate
74648: Aslinger-----	---	---	---	---	Low	High	High
74649: Aslinger-----	---	---	---	---	High	High	High
Waben-----	---	---	---	---	Moderate	Low	Moderate
74650: Higdon-----	---	---	---	---	Moderate	High	Moderate
74684: Raccoon-----	---	---	---	---	High	High	Low
75381: Bearthicket-----	---	---	---	---	High	Low	Low
75395: Jamesfin-----	---	---	---	---	Moderate	Low	Moderate
75408: Secesh-----	---	---	---	---	Moderate	Low	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion		
	Kind	Depth to top In	Thickness In		Hardness	Uncoated steel	Concrete
75409, 75410: Relfe-----	---	---	---	---	Low	Low	Moderate
75411: Tilk-----	---	---	---	---	Moderate	Moderate	High
75416: Gladden-----	---	---	---	---	Moderate	Low	Moderate
77000: Killarney-----	Fragipan	26-34	12-48	Noncemented	Moderate	Moderate	High
Frenchmill-----	---	---	---	---	Moderate	Moderate	High
77001: Loughboro-----	---	---	---	---	High	High	High
77002, 77003: Delassus-----	Fragipan	20-36	20-48	Noncemented	Moderate	High	High
	Bedrock (lithic)	60-80	---	Indurated			
77004: Irondale-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	High
77005: Hassler-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	High	High
Syenite-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	High
77006: Roselle-----	---	---	---	---	Moderate	Moderate	High
77007: Taumsauk-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	High	High
Irondale-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	High
Rock outcrop-----	Bedrock (lithic)	0-4	---	Indurated	---	---	---
77008: Hassler-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	High	High
77009: Trackler-----	Bedrock (lithic)	40-60	---	Indurated	High	Moderate	High
77010: Trackler-----	Bedrock (lithic)	40-60	---	Indurated	High	High	High
Irondale-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	High
78250, 78251: Skrainka-----	---	---	---	---	Moderate	High	Low
99001: Water.							
99006: Psamments.							
99008. Udorthents							
Dumps							



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

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

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

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

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

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, mixed, active, mesic Typic Hapludalfs.

**SERIES.** The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

## Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

### **Alred Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Permeability class:* Moderate in the upper part and slow in the lower part

*Landform:* Upland

*Position on the landform:* Shoulder or backslope

*Parent material:* Cherty hillslope sediments and the underlying clayey residuum

*Slope range:* Strongly sloping to steep (8 to 35 percent)

*Elevation:* 610 feet

*Taxonomic class:* Loamy-skeletal over clayey, siliceous, semiactive, mesic Typic Paleudalfs

### Typical Pedon

Alred very gravelly silt loam, in an area of Alred-Rueter complex, 15 to 35 percent slopes, very stony; in a forest; 2,180 feet south and 1,900 feet east of the northwest corner of sec. 31, T. 31 N., R. 8 E.; USGS Allbright topographic quadrangle; UTM coordinates 4,134,125 meters N. and 747,148 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt wavy boundary.

A—1 to 7 inches; brown (10YR 4/3) very gravelly silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; very friable; many very fine and fine roots; 35 percent chert gravel; moderately acid; abrupt wavy boundary.

E—7 to 11 inches; yellowish brown (10YR 5/4) very gravelly silt loam, pale brown (10YR 6/3) dry; weak very fine subangular blocky structure; very friable; common very fine, fine, and medium roots throughout; 38 percent chert gravel; very strongly acid; abrupt wavy boundary.

Bt1—11 to 18 inches; strong brown (7.5YR 5/6) very gravelly silt loam; moderate very fine subangular blocky structure; friable; common very fine, fine, medium, and coarse roots; very few faint patchy clay films on faces of peds; common prominent discontinuous silt coats on faces of peds; 50 percent chert gravel; very strongly acid; clear wavy boundary.

Bt2—18 to 30 inches; strong brown (7.5YR 5/6) very gravelly silty clay loam; moderate very fine subangular blocky structure; friable; few very fine, fine, and medium roots throughout; common faint discontinuous light yellowish brown (10YR 6/4) clay films on faces of peds; very few prominent patchy silt coats on faces of peds; 52 percent chert gravel; strongly acid; clear wavy boundary.

2Bt3—30 to 40 inches; red (2.5YR 4/8) clay; moderate very fine angular blocky structure; friable; few very fine and fine roots throughout; many distinct continuous clay films on faces of peds; 3 percent chert gravel; very strongly acid; clear wavy boundary.

2Bt4—40 to 58 inches; red (2.5YR 4/6) gravelly clay; moderate very fine angular blocky structure; firm;

few very fine and fine roots throughout; many distinct discontinuous clay films on faces of peds; very few prominent patchy manganese or iron-manganese stains on faces of peds; common prominent patchy light yellowish brown (10YR 6/4) silt coats on faces of peds; 27 percent chert gravel; very strongly acid; gradual wavy boundary.

2Bt5—58 to 80 inches; 75 percent red (2.5YR 4/6) and 25 percent yellowish red (5YR 5/6) very cobbly clay; moderate fine subangular blocky structure; firm; few fine roots throughout; very few prominent patchy manganese or iron-manganese stains on faces of peds; many prominent discontinuous clay films on faces of peds; 5 percent chert stones, 12 percent chert cobbles, and 18 percent chert gravel; strongly acid.

### Range in Characteristics

*Depth to 2Bt horizon:* 14 to 40 inches

*Solum thickness:* More than 60 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—35 to 60 percent

Reaction—very strongly acid to moderately acid

*E horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, or 6

Fine-earth texture—silt loam

Content of rock fragments—20 to 50 percent

Reaction—very strongly acid to moderately acid

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Fine-earth texture—loam, silt loam, or silty clay loam

Content of rock fragments—35 to 75 percent

Reaction—very strongly acid or strongly acid

*2Bt horizon:*

Color—hue of 2.5YR or 5YR, value of 3 to 6, and chroma of 4, 6, or 8

Fine-earth texture—clay

Content of rock fragments—0 to 35 percent

(ranges up to 60 percent in the lower part of the horizon)

Reaction—very strongly acid to neutral

### Aslinger Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* High terrace and valley

*Position on the landform:* Foothlope

*Parent material:* Loamy colluvium and loamy or clayey alluvium

*Slope range:* Moderately sloping and strongly sloping (3 to 15 percent)

*Elevation:* 745 feet

*Taxonomic class:* Fine-loamy, mixed, active, mesic Fragiaquic Paleudults

### Typical Pedon

Aslinger silt loam, 3 to 8 percent slopes; in hayland; 475 feet west and 2,100 feet north of southeast corner of sec. 31, T. 32 N., R. 7 E.; USGS Cherokee Pass topographic quadrangle; UTM coordinates 4,143,764 meters N. and 738,053 meters E., Zone 15, NAD27.

Ap—0 to 4 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate very fine and fine granular structure; very friable; many very fine and fine roots; 2 percent subrounded chert gravel; moderately acid; clear smooth boundary.

AB—4 to 8 inches; dark yellowish brown (10YR 4/4) and dark yellowish brown (10YR 4/6) silt loam; weak very fine subangular blocky structure parting to weak very fine granular; very friable; many very fine and fine roots; 1 percent subrounded chert gravel; slightly acid; clear smooth boundary.

Bt1—8 to 16 inches; dark yellowish brown (10YR 4/6) silt loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; common very fine and fine roots; common faint clay films on faces of peds; 1 percent subrounded chert gravel; moderately acid; abrupt smooth boundary.

Bt2—16 to 21 inches; yellowish brown (10YR 5/8) and light brownish gray (10YR 6/2) silt loam; moderate thick platy structure parting to moderate fine subangular blocky; friable; few very fine roots; common coarse distinct pale brown (10YR 6/3) iron depletions; common distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few prominent clay films on vertical faces of peds; 7 percent subrounded chert gravel; very strongly acid; clear smooth boundary.

2Btx—21 to 29 inches; yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) very gravelly silt loam; moderate thick platy structure parting to moderate fine subangular blocky; friable; 30 percent brittle; few very fine roots between peds; common prominent dark yellowish brown (10YR

4/6) clay films on vertical faces of peds; 53 percent subrounded chert gravel and 1 percent subrounded chert cobbles; very strongly acid; clear irregular boundary.

3Bt1—29 to 40 inches; strong brown (7.5YR 5/6) and red (2.5YR 4/6) very gravelly silty clay loam; moderate fine subangular blocky structure; firm; many prominent grayish brown (10YR 5/2) clay films on faces of peds; 56 percent subrounded chert gravel and 1 percent subrounded chert cobbles; very strongly acid; gradual wavy boundary.

3Bt2—40 to 48 inches; yellowish red (5YR 5/8) very gravelly clay loam; moderate fine subangular blocky structure; firm; many prominent light brownish gray (10YR 6/2) clay films on faces of peds; 49 percent subrounded chert gravel and 2 percent subrounded chert cobbles; very strongly acid; clear wavy boundary.

3Bt3—48 to 55 inches; strong brown (7.5YR 5/6) very gravelly clay loam; moderate fine subangular blocky structure; firm; many prominent light gray (N 7/0) clay films on faces of peds; few black masses of manganese or iron-manganese accumulation; 40 percent subrounded chert gravel and 10 percent subrounded chert cobbles; very strongly acid; clear wavy boundary.

4Bt4—55 to 80 inches; yellowish red (5YR 5/6) extremely cobbly clay; moderate fine subangular blocky structure; firm; many prominent continuous dark red (2.5YR 3/6) clay films on faces of peds; few prominent patchy gray (10YR 5/1) clay films; 35 percent chert gravel and 40 percent chert cobbles; very strongly acid.

### Range in Characteristics

*Depth to 2Btx horizon:* 20 to 36 inches

*A or Ap horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 7 percent

Reaction—very strongly acid to slightly acid

*AB horizon:*

Color—hue of 7.5YR or 10YR, value of 4, and chroma of 4 or 6

Fine-earth texture—silt loam

Content of rock fragments—0 to 7 percent

Reaction—very strongly acid to slightly acid

*Bt horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 6 or 8

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 15 percent  
Reaction—very strongly acid to moderately acid

*2Btx and 3Bt horizons:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR,  
value of 4 to 6, and chroma of 2, 3, 4, 6, or 8  
Fine-earth texture—loam, silt loam, clay loam, or  
silty clay loam  
Content of rock fragments—15 to 60 percent  
chert gravel; 0 to 10 percent chert cobbles  
Reaction—very strongly acid or strongly acid

*4Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR,  
value of 4 to 6, and chroma of 2, 3, 4, 6, or 8  
Fine-earth texture—silty clay loam, clay loam, or  
clay  
Content of rock fragments—25 to 60 percent  
chert gravel; 0 to 40 percent chert cobbles  
Reaction—extremely acid to strongly acid

### ***Bearthicket Series***

*Depth class:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability class:* Moderate  
*Landform:* Stream valley  
*Position on the landform:* Low stream terrace  
*Parent material:* Silty alluvium  
*Slope range:* Nearly level and very gently sloping (0 to  
3 percent)  
*Elevation:* 610 feet  
*Taxonomic class:* Fine-silty, mixed, active, mesic Ultic  
Hapludalfs

#### **Typical Pedon**

Bearthicket silt loam, 0 to 3 percent slopes, rarely  
flooded; in a pasture; 200 feet north and 2,500 feet  
east of the southwest corner of sec. 32, T. 33 N., R. 8  
E.; USGS Marquand topographic quadrangle; UTM  
coordinates 4,153,602 meters N. and 748,489 meters  
E., Zone 15, NAD27.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam,  
yellowish brown (10YR 5/4) dry; moderate fine  
granular structure; very friable; many very fine and  
fine roots; neutral; abrupt wavy boundary.  
A—6 to 12 inches; dark yellowish brown (10YR 4/4)  
silt loam, yellowish brown (10YR 5/4) dry;  
moderate fine granular structure; very friable;  
common very fine roots; neutral; clear wavy  
boundary.  
AB—12 to 19 inches; brown (7.5YR 4/4) silt loam;  
moderate fine granular structure; friable; few very  
fine roots; neutral; clear wavy boundary.

Bt1—19 to 25 inches; strong brown (7.5YR 4/6) silt  
loam; weak very fine subangular blocky structure;  
friable; few very fine roots; neutral; clear wavy  
boundary.

Bt2—25 to 33 inches; strong brown (7.5YR 4/6) silty  
clay loam; weak very fine subangular blocky  
structure; friable; few very fine roots; very few  
distinct manganese or iron-manganese stains;  
neutral; gradual wavy boundary.

Bt3—33 to 45 inches; dark yellowish brown (10YR  
4/6) silty clay loam; moderate fine subangular  
blocky structure; friable; few very fine roots; very  
few distinct manganese or iron-manganese  
stains; neutral; clear wavy boundary.

2Bt4—45 to 60 inches; strong brown (7.5YR 4/6)  
loam; moderate very fine and fine subangular  
blocky structure; friable; few very fine roots; few  
distinct silt coats; few prominent manganese or  
iron-manganese stains; neutral; clear wavy  
boundary.

2Bt5—60 to 64 inches; dark yellowish brown (10YR  
4/6) loam; moderate very fine and fine subangular  
blocky structure; friable; few very fine roots; few  
prominent silt coats; few prominent manganese or  
iron-manganese stains; moderately acid.

#### **Range in Characteristics**

*Solum thickness:* 40 to 80 inches or more

*A or Ap horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4,  
and chroma of 2 to 4  
Fine-earth texture—silt loam  
Content of rock fragments—0 to 2 percent  
Reaction—strongly acid to neutral

*AB horizon or BA horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 3 or 4,  
and chroma of 2, 3, 4, or 6  
Fine-earth texture—silt loam  
Content of rock fragments—0 to 2 percent  
Reaction—strongly acid to neutral

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 5,  
and chroma of 3, 4, or 6  
Fine-earth texture—silt loam or silty clay loam  
Content of rock fragments—0 to 2 percent  
Reaction—strongly acid to neutral

*2Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR,  
value of 3 to 6, and chroma of 3, 4, or 6  
Fine-earth texture—loam, silt loam, clay loam, or  
silty clay loam

Content of rock fragments—0 to 30 percent (may range up to 60 percent below 60 inches)  
Reaction—strongly acid to neutral

*BC, C, 2BC, or 2C horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Fine-earth texture—coarse sandy loam, sandy loam, fine sandy loam, or loam (may be loamy sand below 60 inches)

Content of rock fragments—0 to 35 percent  
Reaction—moderately acid to neutral

### **Bucklick Series**

*Depth class:* Deep or very deep (40 to 60 or more inches)

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Upland

*Position on the landform:* Summit, shoulder, or backslope

*Parent material:* Loess and the underlying clayey materials or residuum from dolostone

*Slope range:* Moderately sloping to steep (3 to 25 percent)

*Elevation:* 615 feet

*Taxonomic class:* Fine, mixed, active, mesic Typic Hapludalfs

#### **Typical Pedon**

Bucklick silt loam, in an area of Caneyville-Bucklick complex, 3 to 8 percent slopes; in a pasture; 880 feet south and 1,350 feet west of the northeast corner of sec. 17, T. 32 N., R. 8 E.; USGS Marquand topographic quadrangle; UTM coordinates 4,149,727 meters N. and 748,900 meters E., Zone 15, NAD27.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam, yellowish brown (10YR 5/4) dry; weak very fine subangular blocky structure parting to weak very fine granular; friable; many very fine and fine roots; 2 percent chert gravel; neutral; abrupt smooth boundary.

Bt1—5 to 11 inches; brown (7.5YR 5/4) silty clay loam; moderate very fine subangular blocky structure; friable; many very fine and fine roots; many distinct clay films; 1 percent subrounded chert gravel; neutral; clear smooth boundary.

Bt2—11 to 15 inches; yellowish red (5YR 4/6) silty clay; moderate fine subangular blocky structure; friable; few very fine roots; many distinct clay films; 1 percent subrounded chert gravel; neutral; clear smooth boundary.

Bt3—15 to 22 inches; reddish brown (5YR 4/4) clay; weak coarse subangular blocky and moderate very fine and fine subangular blocky structure; friable; few very fine roots; many distinct clay films; few prominent manganese or iron-manganese stains; few fine iron-manganese concretions; 2 percent subrounded chert gravel; neutral; clear smooth boundary.

Bt4—22 to 30 inches; yellowish red (5YR 4/6 and 5/6) clay; weak medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; common prominent and common distinct clay films; few prominent manganese or iron-manganese stains; few fine iron-manganese concretions; 1 percent subrounded chert gravel; neutral; clear smooth boundary.

2Bt5—30 to 38 inches; yellowish red (5YR 4/6) and brown (7.5YR 4/4) clay; weak coarse subangular blocky and moderate fine subangular blocky structure; firm; few very fine roots; many prominent clay films; few distinct manganese or iron-manganese stains; few fine iron-manganese concretions; 1 percent chert gravel; neutral; clear smooth boundary.

2Bt6—38 to 46 inches; brown (7.5YR 4/4) clay; moderate medium subangular blocky structure; firm; few very fine roots; many prominent clay films; few distinct manganese or iron-manganese stains; 2 percent chert gravel; slightly alkaline.

2R—46 inches; dolostone.

#### **Range in Characteristics**

*Depth to bedrock:* 40 to 60 inches or more

*A or Ap horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 7 percent

Reaction—moderately acid to neutral

*E horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 7 percent

Reaction—moderately acid to neutral

*Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 5, and chroma of 4, 6, or 8

Fine-earth texture—silty clay loam, silty clay, or clay

Content of rock fragments—0 to 7 percent

Reaction—moderately acid to neutral

**2Bt horizon:**

Color—hue of 2.5YR, 5YR, or 7.5YR, value of 4 or 5, and chroma of 4, 6, or 8

Fine-earth texture—silty clay or clay

Content of rock fragments—0 to 25 percent

Reaction—moderately acid to neutral

**Caneyville Series**

*Depth class:* Moderately deep (20 to 40 inches)

*Drainage class:* Well drained

*Permeability class:* Moderately slow

*Landform:* Upland

*Position on the landform:* Summit, shoulder, or backslope

*Parent material:* Residuum from dolostone

*Slope range:* Moderately sloping to steep (3 to 25 percent)

*Elevation:* 535 feet

*Taxonomic class:* Fine, mixed, active, mesic Typic Hapludalfs

**Typical Pedon**

Caneyville silt loam, in an area of Caneyville-Bucklick complex, 8 to 15 percent slopes, rocky; in a forest; 1,050 feet south and 1,900 feet west of the northeast corner of sec. 33, T. 31 N., R. 5 E.; USGS Coldwater topographic quadrangle; UTM coordinates 4,134,025 meters N. and 721,529 meters E., Zone 15, NAD27.

Ap—0 to 4 inches; brown (7.5YR 4/4) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; friable; many very fine and fine and common medium roots; 7 percent subrounded chert gravel; moderately acid; clear wavy boundary.

BA—4 to 8 inches; reddish brown (5YR 4/4) silt loam; moderate very fine subangular blocky structure; friable; common very fine and fine and few medium roots; common distinct clay films; 5 percent subrounded chert gravel; strongly acid; clear wavy boundary.

Bt1—8 to 18 inches; reddish brown (2.5YR 4/4) clay; moderate very fine subangular blocky structure; firm; few very fine, fine, and medium roots; many distinct clay films; 1 percent subrounded chert gravel; strongly acid; clear smooth boundary.

Bt2—18 to 25 inches; red (2.5YR 4/6) clay; moderate very fine and fine subangular blocky structure; firm; few very fine and fine roots; many prominent clay films; common medium black (10YR 2/1) masses of iron-manganese accumulation; moderately acid; clear smooth boundary.

Bt3—25 to 30 inches; reddish brown (5YR 4/4) clay;

moderate fine subangular blocky structure; firm; common medium prominent olive (5Y 4/4) mottles; few fine roots; few nonintersecting slickensides and many prominent clay films; slightly acid.

R—30 inches; dolostone bedrock.

**Range in Characteristics**

*Depth to bedrock:* 20 to 40 inches

**A or Ap horizon:**

Color—hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 7 percent

Reaction—very strongly acid to moderately acid

**BA horizon and E or BE horizon (where present):**

Color—hue of 5YR, 7.5YR, or 10YR, value of 5 or 6, and chroma of 4 or 6

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 7 percent

Reaction—very strongly acid to neutral

**Bt horizon (upper part):**

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4, 6, or 8

Fine-earth texture—silty clay loam, silty clay, or clay

Content of rock fragments—0 to 7 percent

Reaction—strongly acid to neutral

**Bt horizon (lower part):**

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4, 6, or 8

Mottles—shades of red, brown, yellow, or gray  
Fine-earth texture—silty clay loam, silty clay, or clay

Content of rock fragments—0 to 7 percent

Reaction—moderately acid to slightly alkaline

**C or BC horizon (where present):**

Color—multicolored in shades of red, brown, yellow, olive, or gray

Fine-earth texture—silty clay, clay, loam, or clay loam

Content of rock fragments—0 to 35 percent

Reaction—slightly acid to slightly alkaline

**Captina Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Slow

*Landform:* Upland

*Position on the landform:* Summit of broad ridges

*Parent material:* Thin mantle of silty material and the underlying colluvium and residuum weathered from cherty dolostone

*Slope range:* Moderately sloping (3 to 8 percent)

*Elevation:* 985 feet

*Taxonomic class:* Fine-silty, siliceous, active, mesic Typic Fragiudults

### Typical Pedon

Captina silt loam, 3 to 8 percent slopes; in a hayland; 800 feet south and 4,350 feet east of the northwest corner of sec. 5, T. 32 N., R. 7 E.; USGS Cherokee Pass topographic quadrangle; UTM coordinates 4,152,721 meters N. and 739,493 meters E., Zone 15, NAD27.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; weak very fine subangular blocky structure parting to moderate very fine and fine granular; friable; many very fine and fine and few medium roots throughout; few fine faint dark yellowish brown (10YR 4/6) mottles; few distinct black (10YR 2/1) manganese or iron-manganese stains; neutral; abrupt wavy boundary.

Bt1—5 to 10 inches; strong brown (7.5YR 4/6) silty clay loam; weak very fine and fine subangular blocky structure; friable; common very fine and fine roots throughout; common prominent discontinuous clay films on faces of peds; few fine masses of iron-manganese accumulation; neutral; clear wavy boundary.

Bt2—10 to 16 inches; 60 percent dark yellowish brown (10YR 4/6) and 40 percent strong brown (7.5YR 4/6) silty clay loam; moderate very fine subangular blocky structure; friable; common very fine and fine roots; common distinct discontinuous clay films on faces of peds; few fine masses of iron-manganese accumulation; 1 percent subrounded chert gravel; strongly acid; clear wavy boundary.

Bt3—16 to 20 inches; dark yellowish brown (10YR 4/6) silty clay loam; weak fine subangular blocky and moderate very fine subangular blocky structure; friable; common very fine and fine roots; few fine distinct brown (10YR 5/3) mottles; common distinct discontinuous clay films on faces of peds; few fine masses of iron-manganese accumulation; 1 percent angular chert gravel and 1 percent subrounded chert gravel; very strongly acid; abrupt wavy boundary.

Bt4—20 to 25 inches; 60 percent yellowish brown (10YR 5/6) and 40 percent dark yellowish brown (10YR 4/6) silty clay loam; moderate very fine

subangular blocky structure; very friable; common very fine and fine roots; many prominent continuous clay films on faces of peds; few fine masses of iron-manganese accumulation; 3 percent subrounded chert gravel and 3 percent rounded chert gravel; very strongly acid; abrupt wavy boundary.

2Btx—25 to 31 inches; 50 percent brownish yellow (10YR 6/6), 25 percent dark yellowish brown (10YR 4/4), and 25 percent dark yellowish brown (10YR 3/4) extremely gravelly silt loam; moderate very fine subangular blocky structure; firm; 70 percent brittle; few fine roots; many medium and coarse prominent red (2.5YR 5/8) and common medium faint light yellowish brown (10YR 6/4) masses of iron accumulation; common distinct discontinuous dark yellowish brown (10YR 4/6) clay films on faces of peds; few fine masses of iron-manganese accumulation; 65 percent chert gravel; very strongly acid; clear wavy boundary.

3Bt1—31 to 40 inches; yellowish brown (10YR 5/6) gravelly clay; strong very fine angular blocky structure; firm; many fine prominent red (2.5YR 4/6) and few fine distinct brown (10YR 4/3) masses of iron accumulation; many prominent continuous clay films on faces of peds; 30 percent chert gravel and 1 percent subrounded chert cobbles; extremely acid; gradual irregular boundary.

3Bt2—40 to 52 inches; yellowish brown (10YR 5/8) and yellowish red (5YR 4/6) extremely gravelly clay; strong very fine angular blocky and moderate very fine subangular blocky structure; very firm; few fine prominent brown (10YR 4/3) mottles; many prominent continuous clay films on faces of peds; many medium and coarse brownish yellow (10YR 6/6) masses of iron accumulation; 65 percent angular chert gravel; extremely acid; gradual wavy boundary.

3Bt3—52 to 67 inches; 60 percent strong brown (7.5YR 5/8) and 40 percent yellowish red (5YR 4/6) gravelly clay; moderate very fine angular blocky and moderate very fine subangular blocky structure; firm; common fine and medium prominent reddish brown (5YR 4/3) mottles; many prominent continuous clay films on faces of peds; few fine masses of iron-manganese accumulation; 30 percent chert gravel and 3 percent chert cobbles; very strongly acid; clear wavy boundary.

3Bt4—67 to 78 inches; 60 percent dark yellowish brown (10YR 4/6) and 40 percent yellowish brown (10YR 5/8) gravelly clay loam; moderate very fine and fine subangular blocky structure; firm; common medium and coarse prominent dark red

(2.5YR 3/6) masses of iron accumulation; common prominent discontinuous clay films on faces of peds; few fine black masses of iron-manganese accumulation; 25 percent chert gravel and 5 percent chert cobbles; very strongly acid.

### Range in Characteristics

*Depth to fragipan:* 20 to 38 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 5 percent

Reaction—very strongly acid to slightly acid, unless limed

*E or BE horizon (where present):*

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Fine-earth texture—silt loam

Reaction—very strongly acid to slightly acid, unless limed

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4, 6, or 8

Redoximorphic features—iron segregations in shades of brown or red in the lower part of some pedons

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 5 percent

Reaction—very strongly acid or strongly acid, unless limed

*2Btx horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4, 6, or 8

Redoximorphic features—iron segregations in shades of gray and red

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 35 percent in the upper part; 0 to 70 percent in the lower part

Reaction—extremely acid to strongly acid

*3Bt horizon:*

Color—hue 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 6, and chroma 4, 6, or 8; or is multicolored

Fine-earth texture—clay loam, silty clay, or clay

Content of rock fragments—15 to 70 percent (extremely variable over short distances)

Reaction—extremely acid to strongly acid

## Clarksville Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Somewhat excessively drained

*Permeability class:* Moderately rapid

*Landform:* Steep side slope and narrow ridgetop

*Position on the landform:* Backslope or shoulder

*Parent material:* Hillslope sediments and the underlying clayey residuum from cherty dolostone

*Slope range:* Strongly sloping to very steep (8 to 45 percent)

*Elevation:* 850 feet

*Taxonomic class:* Loamy-skeletal, siliceous, semiactive, mesic Typic Paleudults

### Typical Pedon

Clarksville gravelly silt loam (fig. 14), in an area of Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony; in a forest; 1,600 feet south and 1,300 feet west of the northeast corner of sec. 10, T. 32 N., R. 8 E.; USGS Marquand topographic quadrangle; UTM coordinates 4,151,335 meters N. and 752,098 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt wavy boundary.

A—1 to 6 inches; brown (10YR 4/3) gravelly silt loam, light gray (10YR 7/2) dry; moderate very fine and fine granular structure; very friable; many very fine, fine, and medium roots; 4 percent chert cobbles and 30 percent subangular chert gravel; extremely acid; abrupt wavy boundary.

E—6 to 13 inches; yellowish brown (10YR 5/4) gravelly silt loam, very pale brown (10YR 7/3) dry; weak fine subangular blocky structure parting to weak very fine granular; very friable; many fine, medium, and coarse roots; 1 percent chert cobbles and 32 percent subangular chert gravel; very strongly acid; abrupt wavy boundary.

Bt1—13 to 21 inches; light yellowish brown (10YR 6/4) very gravelly silt loam; weak fine subangular blocky structure parting to moderate very fine granular; friable; common very fine, fine, medium, and coarse roots; 10 percent angular chert cobbles and 36 percent subangular chert gravel; very strongly acid; clear wavy boundary.

2Bt2—21 to 29 inches; strong brown (7.5YR 4/6) extremely gravelly clay loam; moderate fine subangular blocky structure; firm; common fine and medium roots; common prominent yellowish red (5YR 4/6) clay films on vertical faces of peds; common distinct light brown (7.5YR 6/4) silt coats on faces of peds; 65 percent subangular chert gravel; strongly acid; clear wavy boundary.

2Bt3—29 to 43 inches; reddish yellow (7.5YR 6/6) very gravelly clay loam; moderate very fine and fine subangular blocky structure; firm; few very fine and fine roots; common distinct brownish

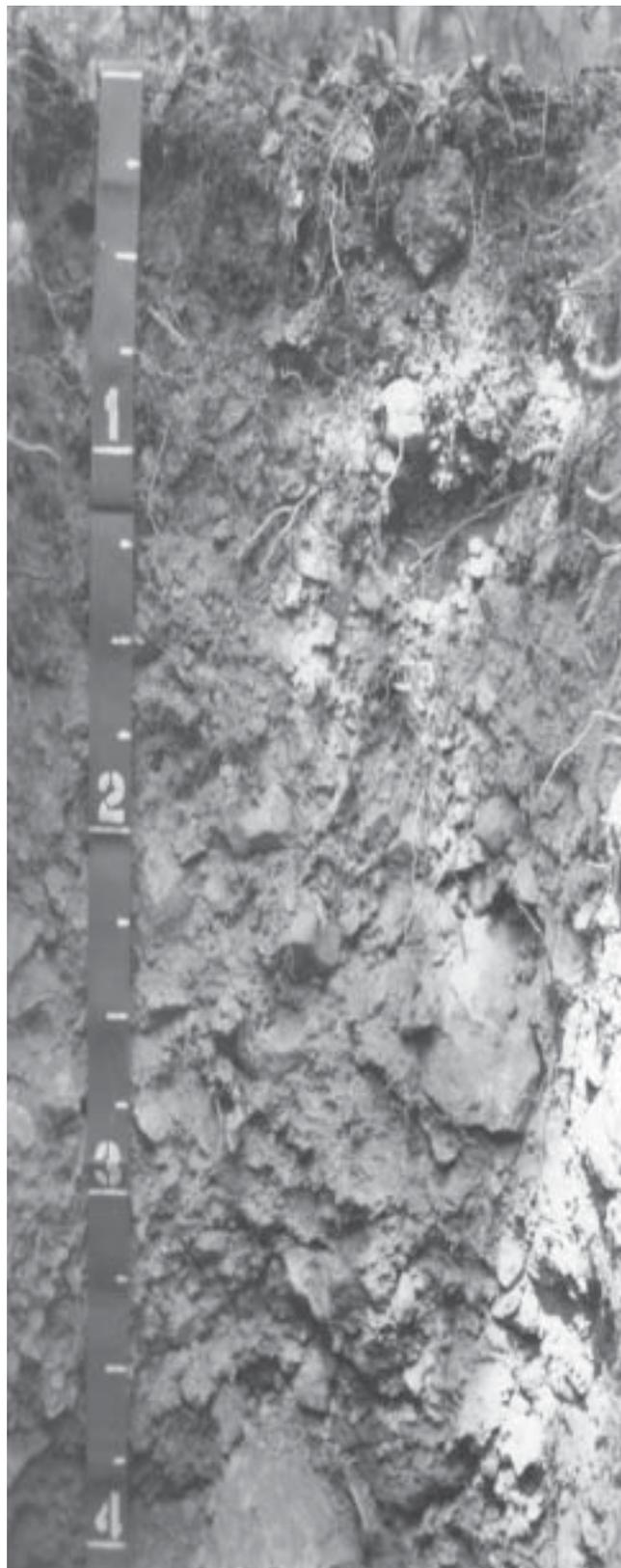


Figure 14.—Profile of Clarksville gravelly silt loam. This soil has a high content of rock fragments. Depth is marked in feet.

yellow (10YR 6/6) silt coats on faces of peds; common prominent red (2.5YR 4/6) clay films on faces of peds; 3 percent chert cobbles and 39 percent subangular chert gravel; very strongly acid; abrupt wavy boundary.

3Bt4—43 to 56 inches; strong brown (7.5YR 5/6) very gravelly clay; moderate very fine and fine subangular blocky structure; firm; few very fine, fine, and medium roots; many prominent red (2.5YR 4/6) clay films on faces of peds and on vertical faces of peds; few medium light gray (10YR 7/2) clay bodies; 36 percent subangular chert gravel and 1 percent chert cobbles; strongly acid; clear wavy boundary.

3Bt5—56 to 66 inches; 60 percent red (2.5YR 4/6) and 40 percent strong brown (7.5YR 5/6) very gravelly clay; moderate fine subangular blocky structure; firm; few very fine, fine, and medium roots; common prominent clay films on faces of peds; common medium light gray (10YR 7/2) clay bodies; many coarse pinkish gray (7.5YR 7/2) iron depletions pedogenic between peds; 38 percent subangular chert gravel; very strongly acid.

#### Range in Characteristics

*Depth to 2Bt horizon:* 36 to 54 inches

*Depth to bedrock:* More than 60 inches

#### *A or Ap horizon:*

Color—hue of 10YR, value of 2 to 6, and chroma of 1 to 4

Fine-earth texture—silt loam

Content of rock fragments—15 to 35 percent

Reaction—extremely acid to moderately acid

#### *E horizon:*

Color—hue of 10YR, value of 4 to 7, and chroma of 2, 3, 4, or 6

Fine-earth texture—silt loam

Content of rock fragments—20 to 50 percent

Reaction—extremely acid to moderately acid

#### *Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4 or 6

Fine-earth texture—loam or silt loam

Content of rock fragments—20 to 50 percent

Reaction—very strongly acid or strongly acid

#### *2Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 6, and chroma of 4 or 6

Fine-earth texture—loam or clay loam

Content of rock fragments—35 to 75 percent

Reaction—very strongly acid or strongly acid

**3Bt horizon:**

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 6, and chroma of 4 or 6  
 Fine-earth texture—clay  
 Content of rock fragments—7 to 60 percent  
 Reaction—very strongly acid or strongly acid

**Cornwall Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Stream valley

*Position on the landform:* High terrace, valley footslope, and intravalley ridge point

*Parent material:* Loess and valley fill materials

*Slope range:* Moderately sloping and strongly sloping (3 to 15 percent)

*Elevation:* 625 feet

*Taxonomic class:* Fine-silty, mixed, active, mesic Fragic Paleudults

**Typical Pedon**

Cornwall silt loam, 3 to 8 percent slopes; in a pasture; 3,500 feet south and 3,950 feet east of the northwest corner of sec. 17, T. 32 N., R. 8 E.; USGS Marquand topographic quadrangle; UTM coordinates 4,148,950 meters N. and 748,732 meters E., Zone 15, NAD27.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam, light gray (10YR 7/2) dry; weak fine granular structure; friable; many fine roots; neutral; clear wavy boundary.

Bt—5 to 17 inches; yellowish brown (10YR 5/6) silty clay loam; weak fine and very fine subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; strongly acid; abrupt wavy boundary.

2Btx1—17 to 27 inches; yellowish brown (10YR 5/6) silt loam; weak very coarse prismatic structure parting to moderate medium platy and weak fine subangular blocky; firm; 30 percent brittle; common fine roots in vertical pale brown seams; common medium and coarse prominent pale brown (10YR 6/3) clay depletions; common medium prominent yellowish red (5YR 5/6) masses of iron accumulation along seam exteriors; common fine black masses of iron and manganese accumulation; few distinct clay films on faces of peds; 2 percent chert gravel; very strongly acid; clear smooth boundary.

2Btx2—27 to 39 inches; yellowish brown (10YR 5/6) silt loam; weak very coarse prismatic structure parting to moderate fine subangular blocky; firm;

40 percent brittle; many medium and coarse prominent light brownish gray (10YR 6/2) iron depletions; common medium and coarse prominent yellowish red (5YR 4/6) masses of iron accumulation along seam exteriors; common very fine black masses of iron and manganese accumulation; few distinct clay films on faces of peds; 2 percent chert gravel; strongly acid; gradual wavy boundary.

3Bt—39 to 60 inches; red (2.5YR 4/6) very gravelly silty clay loam; moderate fine and medium subangular blocky structure; very firm; few medium prominent brown (10YR 5/3) iron depletions; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation; common prominent clay films on faces of peds; 42 percent chert gravel; strongly acid.

**Range in Characteristics**

*Depth to 2Btx horizon:* 17 to 35 inches

*Depth to 3Bt horizon:* 39 to 59 inches

**A or Ap horizon:**

Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 10 percent

Reaction—strongly acid or moderately acid, unless limed

**E horizon (where present):**

Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 10 percent

Reaction—strongly acid or moderately acid

**Bt horizon:**

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6

Fine-earth texture—silty clay loam

Content of rock fragments—0 to 10 percent

Reaction—very strongly acid or strongly acid

**2Btx horizon:**

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 4 or 5, and chroma of 4 or 6

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 60 percent gravel; 0 to 10 percent cobbles

Reaction—very strongly acid or strongly acid

**3Bt horizon:**

Color—hue of 2.5YR, 5YR, or 7.5YR, value of 3 to 5, and chroma of 6 or 8

Fine-earth texture—clay loam, silty clay loam, or clay

Content of rock fragments—15 to 70 percent gravel; 0 to 15 percent cobbles  
Reaction—very strongly acid or strongly acid

### ***Courtois Series***

*Depth class:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability class:* Moderate  
*Landform:* Upland basin and valley slope  
*Position on the landform:* Backslope, footslope, shoulder, or summit  
*Parent material:* Loess and red clayey materials  
*Slope range:* Moderately sloping and strongly sloping (3 to 15 percent)  
*Elevation:* 440 feet  
*Taxonomic class:* Fine, mixed, active, mesic Typic Paleudalfs

#### **Typical Pedon**

Courtois silt loam, 8 to 15 percent slopes; in hardwoods; 450 feet west and 1,100 feet south of the southwest corner of Highway 34 Bridge over the St. Francis River in Wayne County; USGS Patterson, Missouri, topographic quadrangle; UTM coordinates 4,118,805 meters N. and 721,481 meters E., Zone 15, NAD27.

- A—0 to 7 inches; dark brown (7.5YR 3/3) silt loam; moderate fine subangular blocky structure; friable; many very fine, fine, medium, and coarse roots; many very fine and fine vesicular and common fine tubular pores; 10 percent subangular chert gravel; strongly acid; clear wavy boundary.
- BE—7 to 16 inches; brown (7.5YR 4/4) silt loam; moderate very fine subangular blocky structure; firm; many very fine, fine, and medium roots; many very fine and fine vesicular and common fine tubular pores; strongly acid; gradual smooth boundary.
- Bt1—16 to 27 inches; 60 percent red (2.5YR 4/6) and 40 percent yellowish red (5YR 4/6) silty clay loam; moderate very fine and fine subangular blocky structure; very firm; common very fine and fine roots; many very fine vesicular and common fine tubular pores; common black (10YR 2/1) iron-manganese masses; strongly acid; gradual smooth boundary.
- 2Bt2—27 to 36 inches; 60 percent red (2.5YR 4/6) and 40 percent yellowish red (5YR 4/6) silty clay; moderate very fine and fine subangular blocky structure; very firm; common very fine and fine roots; many very fine vesicular and common fine tubular pores; common black (10YR 2/1) iron-

manganese masses; strongly acid; abrupt wavy boundary.

2Bt3—36 to 50 inches; 70 percent red (10R 4/6) and 30 percent yellowish red (5YR 4/6) very gravelly clay; strong very fine and fine angular blocky structure; very firm; few very fine and fine roots; many very fine vesicular pores; common black (10YR 2/1) iron-manganese masses; 40 percent angular chert gravel; strongly acid; gradual smooth boundary.

3Bt4—50 to 60 inches; 70 percent red (10R 4/6) and 30 percent yellowish red (5YR 4/6) very gravelly clay; strong very fine and fine angular blocky structure; very firm; few very fine and fine roots; many very fine vesicular pores; common black (10YR 2/1) iron-manganese masses; 40 percent angular chert gravel; strongly acid; clear wavy boundary.

3Bt5—60 to 70 inches; 80 percent red (10R 4/6) and 20 percent yellowish red (5YR 4/6) clay; strong very fine angular blocky structure; very firm; few very fine and fine roots; few very fine vesicular pores; 2 percent angular chert gravel; very strongly acid; gradual smooth boundary.

3Bt6—70 to 80 inches; 80 percent red (10R 4/6) and 20 percent yellowish red (5YR 4/6) clay; strong very fine angular blocky structure; very firm; few very fine and fine roots; few very fine vesicular pores; 2 percent angular chert gravel; strongly acid.

#### **Range in Characteristics**

*Depth to 2Bt horizon:* 16 to 33 inches  
*Depth to bedrock:* More than 60 inches

*A or Ap horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 3 or 4, and chroma of 2 to 4  
Fine-earth texture—silt loam  
Content of rock fragments—0 to 15 percent  
Reaction—strongly acid to neutral

*E horizon (where present) and BE horizon:*

Color—hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6  
Fine-earth texture—silt loam  
Content of rock fragments—0 to 20 percent  
Reaction—strongly acid to neutral

*Bt horizon:*

Color—hue of 2.5YR, 5YR, or 7.5YR, value of 3 or 4, and chroma of 4 or 6  
Fine-earth texture—silt loam, silty clay loam, or silty clay  
Content of rock fragments—0 to 15 percent  
Reaction—strongly acid or moderately acid

**2Bt horizon:**

Color—hue of 10R, 2.5YR, or 5YR, value of 3 to 5, and chroma of 4 or 6  
 Fine-earth texture—clay loam, silty clay loam, silty clay, or clay  
 Content of rock fragments—0 to 50 percent in the upper part; 0 to 20 percent in the lower part  
 Reaction—strongly acid or moderately acid

**3Bt horizon:**

Color—hue of 10R, 2.5YR, or 5YR, value of 3 to 5, and chroma of 4 or 6  
 Fine-earth texture—clay  
 Content of rock fragments—0 to 30 percent  
 Reaction—strongly acid to neutral

**Crider Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Upland

*Position on the landform:* Summit

*Parent material:* Loess and the underlying residuum from dolostone

*Slope range:* Moderately sloping (3 to 8 percent)

*Elevation:* 610 feet

*Taxonomic class:* Fine-silty, mixed, active, mesic Typic Paleudalfs

**Typical Pedon**

Crider silt loam, 3 to 8 percent, eroded; in a pasture; 350 feet south and 3,950 feet east of the northwest corner of sec. 20, T. 32 N., R. 8 E.; USGS Marquand topographic quadrangle; UTM coordinates 4,148,274 meters N. and 748,796 meters E., Zone 15, NAD27.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine and fine roots; neutral; abrupt boundary.

Bt1—8 to 15 inches; brown (7.5YR 4/4) silt loam; weak fine subangular blocky and moderate very fine subangular blocky structure; friable; common very fine roots; few distinct clay films on faces of peds; neutral; abrupt boundary.

Bt2—15 to 26 inches; strong brown (7.5YR 4/6) silt loam; moderate fine subangular blocky structure; firm; common fine roots; many prominent clay films on faces of peds; few fine black (10YR 2/1) iron-manganese concretions; neutral; abrupt boundary.

Bt3—26 to 32 inches; strong brown (7.5YR 4/6) silty clay loam; weak fine subangular blocky structure; friable; few fine roots; many fine pores; common

distinct clay films on faces of peds; few prominent pale brown (10YR 6/3) silt coats on faces of peds; common fine strong brown (7.5YR 5/8) masses of iron accumulation; 2 percent gravel; neutral; abrupt boundary.

2Bt4—32 to 45 inches; dark red (2.5YR 3/6) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; firm; few very fine roots; common fine distinct yellowish red (5YR 5/8) mottles; common prominent clay films on faces of peds; few prominent coats on faces of peds; few prominent black (10YR 2/1) manganese or iron-manganese stains on faces of peds; neutral; abrupt boundary.

2Bt5—45 to 57 inches; red (2.5YR 4/6) silty clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; few very fine roots; common prominent clay films on faces of peds; few prominent black (10YR 2/1) manganese or iron-manganese stains on faces of peds; common prominent strong brown (7.5YR 5/8) silt coats on faces of peds; 2 percent chert gravel; slightly acid; gradual boundary.

2Bt6—57 to 67 inches; dark red (2.5YR 3/6) silty clay loam; weak coarse prismatic structure parting to moderate fine subangular blocky; firm; common medium prominent yellowish brown (10YR 5/8) mottles; many prominent clay films on faces of peds; few prominent black (10YR 2/1) manganese or iron-manganese stains on faces of peds; few prominent light gray (5YR 7/1) silt coats on faces of peds; slightly acid; clear boundary.

3Bt7—67 to 74 inches; red (2.5YR 4/6) silty clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; common medium prominent strong brown (7.5YR 5/8) mottles; many prominent clay films on faces of peds; very few prominent black (10YR 2/1) manganese or iron-manganese stains on faces of peds; common very coarse and extremely coarse light gray (5YR 7/1) soft iron depletions pedogenic between peds; strongly acid.

**Range in Characteristics**

*Depth to bedrock:* More than 60 inches

**Ap horizon:**

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4

Fine-earth texture—silt loam

Reaction—strongly acid to neutral

**Bt horizon:**

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 or 5, and chroma of 4 or 6

Fine-earth texture—silt loam or silty clay loam  
Reaction—strongly acid to neutral

*2Bt and 3Bt horizons:*

Color—hue of 10R, 2.5YR, or 5YR, value of 3 to 5, and chroma of 4, 6, or 8  
Fine-earth texture—silty clay loam, silty clay, or clay  
Redoximorphic features—iron segregations in shades of red, brown, or yellow  
Content of rock fragments—0 to 10 percent  
Reaction—strongly acid to slightly acid

### **Deible Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Permeability class:* Very slow

*Landform:* Stream valley

*Position on the landform:* Stream terrace and footslope

*Parent material:* Loess and the underlying alluvium

*Slope range:* Very gently sloping (1 to 3 percent)

*Elevation:* 400 feet

*Taxonomic class:* Fine, mixed, active, mesic Typic Albaqualfs

#### **Typical Pedon**

Deible silt loam, 1 to 3 percent slopes; in a row crop area; 2,150 feet east and 250 feet south of the northwest corner of sec. 19, T. 27 N., R. 6 E.; in Wayne County; USGS Hendrickson, Missouri, topographic quadrangle; UTM coordinates 4,095,981 meters N. and 726,723 meters E., Zone 15, NAD27.

Ap—0 to 6 inches; brown (10YR 5/3) silt loam; moderate fine granular structure; friable; many very fine and fine roots; many very fine and fine vesicular pores; 1 percent subangular chert gravel; moderately acid; clear smooth boundary.

E1—6 to 10 inches; yellowish brown (10YR 5/3) silt loam; weak very fine subangular blocky structure; friable; many very fine and fine roots; many very fine and fine vesicular pores; common black (10YR 2/1) iron-manganese masses; 1 percent subangular chert gravel; strongly acid; clear smooth boundary.

E2—10 to 16 inches; 50 percent yellowish brown (10YR 5/3) and 50 percent light yellowish brown (10YR 6/4) silt loam; moderate very fine and fine subangular blocky structure; firm; common very fine and fine roots; many very fine vesicular pores; many light gray (10YR 7/2) iron depletions; common iron-manganese masses; 1 percent

subangular chert gravel; moderately acid; abrupt smooth boundary.

Btg1—16 to 23 inches; 60 percent grayish brown (10YR 5/2) and 40 percent gray (10YR 5/1) silty clay; moderate fine angular blocky structure; firm; few very fine roots; many very fine vesicular pores; common distinct clay films on faces of peds; common strong brown (7.5YR 4/6) masses of oxidized iron; common black (10YR 2/1) iron-manganese masses; 2 percent subangular chert gravel; neutral; gradual smooth boundary.

Btg2—23 to 33 inches; 80 percent gray (10YR 5/1) and 20 percent grayish brown (10YR 5/2) silty clay loam; moderate very fine and fine angular blocky structure; firm; few very fine roots; common very fine vesicular pores; common distinct clay films on faces of peds; many strong brown (7.5YR 4/6) masses of oxidized iron; common black (10YR 2/1) iron-manganese masses; 3 percent subangular chert gravel; slightly alkaline; gradual smooth boundary.

2Btg3—33 to 50 inches; 65 percent dark yellowish brown (10YR 4/4) and 35 percent gray (10YR 6/1) silty clay loam; moderate very fine and fine angular blocky structure; firm; common very fine vesicular pores; few faint clay films on faces of peds; common yellowish red (5YR 5/8) masses of oxidized iron; 10 percent subangular chert gravel; slightly alkaline; gradual smooth boundary.

2Btg4—50 to 68 inches; 40 percent gray (10YR 6/1), 30 percent yellowish brown (10YR 5/4), and 30 percent yellowish brown (10YR 5/6) silty clay loam; moderate very fine and fine subangular blocky structure; firm; many very fine vesicular pores; few faint clay films on faces of peds; common black (10YR 2/1) iron-manganese masses; 10 percent subangular chert gravel; slightly alkaline; gradual smooth boundary.

2Btg5—68 to 80 inches; 60 percent strong brown (7.5YR 4/6) and 40 percent gray (10YR 6/1) clay loam; moderate very fine and fine subangular blocky structure; firm; many very fine vesicular pores; few faint clay films on faces of peds; common red (2.5YR 4/8) masses of oxidized iron; common black (10YR 2/1) iron-manganese masses; 15 percent subangular chert gravel; moderately alkaline.

#### **Range in Characteristics**

*Depth to Btg horizon:* 13 to 22 inches

*Depth to 2Btg horizon:* 30 to 40 inches

*Solum thickness:* 30 to 60 inches or more

*A or Ap horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3

Fine-earth texture—silt loam

Content of rock fragments—0 to 10 percent

Reaction—strongly acid to neutral

*E horizon or BE horizon (where present):*

Color—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 15 percent

Reaction—very strongly acid to neutral

*Btg horizon:*

Color—hue of 7.5YR, 10YR, or 2.5Y, value of 4 to 6, and chroma of 1 or 2

Fine-earth texture—silty clay loam or silty clay

Content of rock fragments—0 to 3 percent

Reaction—very strongly acid to slightly alkaline

*2Btg horizon or 2BCg horizon (where present):*

Color—hue of 7.5YR, 10YR, 2.5Y, 5Y, or N, value of 4 to 6, and chroma of 0, 1, 2, 3, 4, or 6

Fine-earth texture—silt loam, silty clay loam, or clay loam

Content of rock fragments—0 to 15 percent

Reaction—strongly acid to moderately alkaline

**Delassus Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderate in the upper part and very slow in the fragipan

*Landform:* Mountain

*Position on the landform:* Summit and footslope

*Parent material:* Loess and the underlying residuum or colluvium from granite and other rocks of igneous origin

*Slope range:* Moderately sloping and strongly sloping (3 to 15 percent)

*Elevation:* 975 feet

*Taxonomic class:* Fine-loamy, mixed, active, mesic Typic Fragiudults

**Typical Pedon**

Delassus silt loam, 3 to 8 percent slopes; in a wooded area; 2,210 feet west and 1,980 feet south of the northeast corner of sec. 2, T. 34 N., R. 5 E.; in St. Francois County; USGS Wachita topographic quadrangle; UTM coordinates 4,173,457 meters N. and 725,130 meters E., Zone 15, NAD27.

A—0 to 3 inches; dark brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine and

very fine granular structure; friable; many very fine and few fine roots; neutral; abrupt smooth boundary.

E—3 to 7 inches; yellowish brown (10YR 5/4) silt loam with about 10 percent mixing of dark brown (10YR 4/3) A horizon material; weak fine granular structure; friable; common very fine and few fine roots; moderately acid; clear wavy boundary.

BE—7 to 13 inches; brown (7.5YR 5/4) silt loam; moderate medium and fine subangular blocky structure; friable; common fine and few very fine roots; strongly acid; clear wavy boundary.

Bt—13 to 26 inches; brown (7.5YR 4/4) silty clay loam; moderate medium and fine subangular blocky structure; firm; common fine and few very fine and medium roots; few faint reddish brown clay films on faces of peds; very strongly acid; clear smooth boundary.

2E—26 to 31 inches; light yellowish brown (10YR 6/4) silt loam; weak thin and medium platy structure; firm; common fine and very fine roots along horizontal plates; many coarse faint dark yellowish brown (10YR 4/6) mottles; extremely acid; abrupt smooth boundary.

2Btx1—31 to 45 inches; light brownish gray (10YR 6/2) loam; moderate very coarse prismatic structure, ped interiors massive; very firm; 60 percent brittle; very hard; common medium distinct dark yellowish brown (10YR 4/6) mottles; few very fine roots along faces of prisms; few faint dark brown clay films and flows on vertical faces of prisms; 1 percent granite gravel; extremely acid; gradual wavy boundary.

2Btx2—45 to 61 inches; reddish yellow (7.5YR 6/6) loam; weak very coarse prismatic structure, ped interiors massive; very firm; 60 percent brittle; very hard; many coarse distinct light brownish gray (10YR 6/2) mottles; few faint brown clay films and flows on vertical faces of prisms; 2 percent granite gravel; extremely acid; abrupt wavy boundary.

2R—61 inches; granite.

**Range in Characteristics**

*Depth to 2Btx horizon:* 20 to 36 inches

*Solum thickness:* 48 to 72 inches

*A or Ap horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 27 percent

Reaction—very strongly acid to moderately acid, unless limed

*E horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 6,  
and chroma 2, 3, 4, or 6  
Fine-earth texture—silt loam  
Content of rock fragments—0 to 27 percent  
Reaction—very strongly acid to moderately acid

*BE horizon and Bt horizon (upper part):*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to  
6, and chroma of 3, 4, or 6  
Fine-earth texture—silt loam or loam  
Content of rock fragments—0 to 27 percent  
Reaction—very strongly acid to moderately acid

*Bt horizon (lower part):*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to  
6, and chroma of 3, 4, or 6  
Fine-earth texture—silt loam, loam, or silty clay  
loam  
Content of rock fragments—0 to 27 percent  
Reaction—extremely acid to strongly acid

*2E horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to  
7, and chroma of 2, 3, 4, or 6  
Fine-earth texture—silt loam or loam  
Content of rock fragments—0 to 35 percent  
Reaction—extremely acid or very strongly acid

*2Btx horizon:*

Color—hue of 7.5YR, 10YR, or 2.5Y, value of 4 to  
6, and chroma of 2, 3, 4, 6, or 8  
Fine-earth texture—coarse sandy loam, sandy  
loam, loam, or silt loam  
Content of rock fragments—0 to 60 percent  
Reaction—extremely acid to strongly acid

*3Bt horizon (where present):*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR,  
value of 3 to 7, and chroma of 1, 2, 3, 4, 6, or 8  
Fine-earth texture—loam, silt loam, or silty clay  
loam  
Rock fragments—15 to 60 percent  
Reaction—extremely acid to strongly acid

**Firebaugh Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderate in the upper part and  
slow in the lower part

*Landform:* Ridgetop and side slope

*Position on the landform:* Summit or shoulder

*Parent material:* Thin layer of loess or silty sediment  
and the underlying loamy and clayey residuum  
weathered from cherty dolostone

*Slope range:* Moderately sloping and strongly sloping  
(3 to 15 percent)

*Elevation:* 905 feet

*Taxonomic class:* Fine-loamy, mixed, active, mesic  
Fragiaquic Paleudults

**Typical Pedon**

Firebaugh silt, 3 to 8 percent slopes; in a forest; 2,810  
feet east and 100 feet north of the southwest corner  
of sec. 32, T. 32 N., R. 7 E.; USGS Cherokee Pass  
topographic quadrangle; UTM coordinates 4,143,173  
meters N. and 738,987 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs,  
and roots; abrupt smooth boundary.

A—1 to 4 inches; brown (10YR 4/3) silt, pale brown  
(10YR 6/3) dry; moderate fine granular structure;  
very friable; many very fine and fine and common  
medium and coarse roots; 1 percent subangular  
chert gravel; very strongly acid; clear smooth  
boundary.

E—4 to 8 inches; yellowish brown (10YR 5/4) silt, very  
pale brown (10YR 7/4) dry; weak fine subangular  
blocky structure; friable; many very fine and fine  
and common medium and coarse roots; very  
strongly acid; clear smooth boundary.

Bt1—8 to 17 inches; strong brown (7.5YR 4/6) silty  
clay loam; moderate very fine and fine subangular  
blocky structure; friable; many very fine and fine  
and common medium roots; many faint clay films  
on faces of peds; very strongly acid; clear wavy  
boundary.

Bt2—17 to 21 inches; strong brown (7.5YR 5/6) silty  
clay loam; moderate very fine and fine subangular  
blocky structure; friable; common very fine, fine,  
and medium roots; common fine prominent pale  
brown (10YR 6/3) iron depletions; many distinct  
clay films on faces of peds; 1 percent subangular  
chert cobbles and 5 percent subangular chert  
gravel; very strongly acid; abrupt wavy boundary.

2Btx—21 to 36 inches; yellowish brown (10YR 5/6)  
very gravelly silt loam; weak coarse prismatic  
structure parting to moderate very fine and fine  
subangular blocky; firm; 40 percent brittle;  
common fine roots; common fine prominent  
grayish brown (10YR 5/2) iron depletions; few  
distinct pale brown (10YR 6/3) and light brownish  
gray (10YR 6/2) clay depletions on faces of peds;  
few prominent clay films on vertical faces of peds;  
5 percent subangular chert cobbles and 50  
percent subangular chert gravel; very strongly  
acid; clear wavy boundary.

3Bt3—36 to 52 inches; strong brown (7.5YR 4/6 and  
7.5YR 5/6) very cobbly clay; moderate very fine  
and fine subangular blocky structure; firm;

common very fine roots; common coarse prominent red (2.5YR 4/6) masses of iron accumulation; very few distinct light gray (10YR 7/2) clay depletions on faces of peds; common prominent clay films on vertical faces of peds; 10 percent angular chert stones, 15 percent angular chert cobbles, and 22 percent subangular chert gravel; very strongly acid; clear wavy boundary.

3Bt4—52 to 71 inches; red (2.5YR 4/6) and strong brown (7.5YR 5/6) extremely cobbly clay; moderate fine subangular blocky structure; very firm; few very fine roots; common fine and medium prominent light gray (10YR 7/2) iron depletions; common prominent clay films on faces of peds; 10 percent angular chert stones, 30 percent angular chert cobbles, and 31 percent subangular chert gravel; very strongly acid.

#### Range in Characteristics

*Depth to 2Btx horizon:* 18 to 27 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 2 or 3

Fine-earth texture—silt or silt loam

Content of rock fragments—0 to 10 percent

Reaction—very strongly acid to moderately acid

*E horizon:*

Color—hue of 10YR, value of 4 to 8, and chroma of 3, 4, or 6

Fine-earth texture—silt or silt loam

Content of rock fragments—0 to 10 percent

Reaction—very strongly acid to moderately acid

*Bt horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4, 6, or 8

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 15 percent

Reaction—very strongly acid or strongly acid

*2Btx horizon:*

Color—7.5YR or 10YR, value of 4 to 7, and chroma of 4, 6, or 8

Fine-earth texture—loam, silt loam, or silty clay loam

Content of rock fragments—20 to 60 percent

Reaction—very strongly acid or strongly acid

*3Bt horizon:*

Color—2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 7, and chroma of 4, 6, or 8

Fine-earth texture—clay loam or clay

Content of rock fragments—15 to 75 percent

Reaction—very strongly acid or strongly acid

### Fourche Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Upland side slope and point ridge

*Position on the landform:* Summit

*Parent material:* Loess and the underlying residuum from dolostone

*Slope range:* Moderately sloping (3 to 8 percent)

*Elevation:* 518 feet

*Taxonomic class:* Fine-silty, mixed, active, mesic Glossoaquic Paleudalfs

#### Typical Pedon

Fourche silt loam, 3 to 8 percent slopes; in a pasture; 4,300 feet south and 3,000 feet east of the northwest corner of sec. 31, T. 30 N., R. 5 E.; USGS Brunot topographic quadrangle; UTM coordinates 4,132,797 meters N. and 718,040 meters E., Zone 15, NAD27.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silt loam, yellowish brown (10YR 5/4) dry; weak fine subangular blocky structure parting to moderate very fine granular; very friable; many very fine and fine roots; 1 percent chert gravel; moderately acid; abrupt wavy boundary.

AB—5 to 9 inches; brown (7.5YR 4/4) silt loam, brownish yellow (10YR 6/6) dry; weak fine subangular blocky structure parting to weak very fine granular; friable; common very fine and fine roots; moderately acid; clear wavy boundary.

Bt1—9 to 18 inches; strong brown (7.5YR 4/6) silty clay loam; moderate very fine subangular blocky structure; friable; common very fine roots; common faint discontinuous clay films on faces of peds; very few prominent dark brown (10YR 3/3) manganese or iron-manganese stains; slightly acid; clear wavy boundary.

Bt2—18 to 23 inches; strong brown (7.5YR 4/6) silty clay loam; weak fine subangular blocky and moderate very fine subangular blocky structure; friable; common very fine roots; few distinct discontinuous clay films on faces of peds; few faint discontinuous silt coats on faces of peds; few prominent patchy clay films on vertical faces of peds; very few prominent black (10YR 2/1) manganese or iron-manganese stains; common black (10YR 2/1) iron-manganese concretions throughout; strongly acid; abrupt wavy boundary.

Bt3—23 to 30 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; common very fine roots; common fine distinct pale brown (10YR 6/3) and common medium

prominent red (2.5YR 4/6) mottles; many distinct continuous clay films on faces of peds; few distinct patchy light brown (7.5YR 6/4) silt coats on faces of peds; few prominent discontinuous clay films on vertical faces of peds; few prominent black (10YR 2/1) manganese or iron-manganese stains; common black (10YR 2/1) iron-manganese concretions throughout; very strongly acid; clear wavy boundary.

**2Bt/E**—30 to 37 inches; dark red (2.5YR 3/6) and strong brown (7.5YR 5/6) silty clay loam (Bt); strong medium prismatic structure parting to moderate fine subangular blocky; firm; common prominent discontinuous clay films on vertical faces of peds; few prominent black (10YR 2/1) manganese or iron-manganese stains; common black (10YR 2/1) iron-manganese concretions between peds; common fine and medium light gray (10YR 7/2) soft iron depletions pedogenic between peds; light yellowish brown (10YR 6/4) silty clay loam (E); friable; few very fine roots; very strongly acid; abrupt irregular boundary.

**2Bt4**—37 to 56 inches; 60 percent brown (7.5YR 5/4) and 40 percent dark red (2.5YR 3/6) silty clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; few very fine roots; common prominent discontinuous clay films on faces of peds; very few prominent black (10YR 2/1) manganese or iron-manganese stains; few black (10YR 2/1) masses of iron-manganese accumulation between peds; common very coarse and extremely coarse light brownish gray (10YR 6/2) and light gray (10YR 7/2) soft iron depletions pedogenic between peds; very strongly acid; clear wavy boundary.

**3Bt5**—56 to 66 inches; 65 percent dark red (2.5YR 3/6) and 35 percent brown (7.5YR 5/4) silty clay; weak medium subangular blocky and moderate very fine subangular blocky structure; firm; many prominent continuous clay films on faces of peds; very few prominent black (10YR 2/1) manganese or iron-manganese stains; few black (10YR 2/1) masses of iron-manganese accumulation throughout; common coarse light brownish gray (10YR 6/2) and light gray (10YR 7/2) soft iron depletions pedogenic between peds; very strongly acid.

#### Range in Characteristics

*Depth to bedrock:* More than 60 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 4, and chroma of 2 to 4

Fine-earth texture—silt loam

Reaction—moderately acid to neutral

*AB and Bt horizons:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, or 6

Fine-earth texture—silty clay loam or silt loam

Reaction—very strongly acid to moderately acid

*2Bt/E horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4 or 6 (2Bt); hue of 10YR, value of 5 to 7, and chroma of 1 to 4 (E)

Redoximorphic features—iron segregations in shades of gray in some pedons

Fine-earth texture—silty clay loam or silty clay (2Bt); silt loam (E)

Content of rock fragments—0 to 10 percent

Reaction—very strongly acid or strongly acid

*3Bt horizon:*

Color—hue of 2.5YR, 5YR, or 7.5YR, value of 4 or 5, and chroma of 4 or 6

Redoximorphic features—iron segregations in shades of brown, yellow, or gray

Fine-earth texture—silty clay or clay

Content of rock fragments—0 to 35 percent

Reaction—strongly acid to neutral

### Frenchmill Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Mountain

*Position on the landform:* Backslope and footslope

*Parent material:* Colluvial materials weathered from rhyolite or granite

*Slope range:* Moderately steep to very steep (15 to 45 percent)

*Elevation:* 875 feet

*Taxonomic class:* Loamy-skeletal, mixed, active, mesic Typic Paleudults

#### Typical Pedon

Frenchmill very cobbly silt loam, in an area of Killarney-Frenchmill complex, 15 to 45 percent slopes, rubbly; in a forest; 125 feet south and 1,350 feet east of the northwest corner of sec. 3, T. 33 N., R. 5 E.; USGS Rhodes Mountain topographic quadrangle; UTM coordinates 4,164,018 meters N. and 721,959 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt wavy boundary.

A—1 to 5 inches; brown (10YR 4/3) very cobbly silt

loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; very friable; many very fine, fine, and medium roots; 15 percent rhyolite cobbles and 23 percent rhyolite gravel; very strongly acid; abrupt wavy boundary.

- E1—5 to 11 inches; yellowish brown (10YR 5/4) very cobbly loam, light gray (10YR 7/2) dry; weak fine granular structure; friable; many very fine, fine, and medium roots; 20 percent rhyolite cobbles and 15 percent rhyolite gravel; very strongly acid; clear wavy boundary.
- E2—11 to 16 inches; dark yellowish brown (10YR 4/6) very cobbly loam, very pale brown (10YR 7/4) dry; weak fine granular structure; friable; common very fine, fine, and medium roots; few brown (10YR 5/3) silt coats on rock fragments; 20 percent rhyolite cobbles and 20 percent rhyolite gravel; very strongly acid; clear wavy boundary.
- 2Bt1—16 to 23 inches; yellowish brown (10YR 5/8) very cobbly loam; moderate very fine subangular blocky structure; friable; common fine and medium roots; common distinct strong brown (7.5YR 4/6) clay films on faces of peds; few silt coats; 20 percent rhyolite cobbles and 25 percent rhyolite gravel; very strongly acid; clear wavy boundary.
- 2Bt2—23 to 31 inches; yellowish brown (10YR 5/6) very gravelly loam; moderate fine subangular blocky structure; firm; few fine and medium roots; common yellowish red (5YR 4/6) clay films on faces of peds; common light yellowish brown (10YR 6/4) silt coats; 18 percent rhyolite cobbles and 42 percent rhyolite gravel; very strongly acid; gradual wavy boundary.
- 2Bt3—31 to 37 inches; 60 percent strong brown (7.5YR 4/6) and 40 percent light yellowish brown (10YR 6/4) very gravelly loam; moderate fine subangular blocky structure; firm; few fine roots; many prominent dark red (2.5YR 3/6) clay films on faces of peds; 15 percent rhyolite cobbles and 37 percent rhyolite gravel; very strongly acid; clear wavy boundary.
- 3Bt4—37 to 47 inches; strong brown (7.5YR 5/8) sandy clay loam; weak fine and medium subangular blocky structure; firm; few very fine roots; few prominent light reddish brown (5YR 6/3) clay films on vertical faces of peds; common prominent yellowish red (5YR 4/6) clay films on faces of peds; very strongly acid; clear wavy boundary.
- 3Bt5—47 to 55 inches; strong brown (7.5YR 4/6) sandy clay loam; moderate coarse prismatic structure; firm; few very fine roots; few prominent reddish gray (5YR 5/2) clay films on faces of peds;

common prominent yellowish red (5YR 4/6) clay films on faces of peds; very strongly acid; gradual wavy boundary.

- 3Bt6—55 to 71 inches; 60 percent strong brown (7.5YR 5/8) and 35 percent yellowish red (5YR 5/6) sandy clay loam; weak coarse prismatic structure; friable; few prominent pinkish gray (5YR 6/2 and 7/2) clay films on vertical faces of peds; 1 percent rhyolite gravel; very strongly acid.

### Range in Characteristics

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3

Fine-earth texture—silt loam

Content of rock fragments—35 to 60 percent

Reaction—very strongly acid to moderately acid

#### *E horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6

Fine-earth texture—silt loam or loam

Content of rock fragments—10 to 50 percent

Reaction—very strongly acid or strongly acid

#### *Bt horizon (where present):*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4, 6, or 8

Fine-earth texture—silt loam

Content of rock fragments—35 to 60 percent

Reaction—very strongly acid or strongly acid

#### *2Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 4 to 7, and chroma of 3, 4, 6, or 8

Fine-earth texture—loam or clay loam

Content of rock fragments—35 to 60 percent

Reaction—very strongly acid or strongly acid

#### *3Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 6, and chroma of 4, 6, or 8

Fine-earth texture—sandy clay loam or clay loam

Content of rock fragments—0 to 35 percent

Reaction—very strongly acid or strongly acid

## **Gasconade Series**

*Depth class:* Shallow and very shallow (4 to 20 inches)

*Drainage class:* Somewhat excessively drained

*Permeability class:* Moderately slow

*Landform:* Upland

*Position on the landform:* Backslope, footslope, or shoulder

*Parent material:* Thin, clayey residuum from dolostone

*Slope range:* Moderately sloping to steep (3 to 35 percent)

*Elevation:* 510 feet

*Taxonomic class:* Clayey-skeletal, mixed, superactive, mesic Lithic Hapludolls

### Typical Pedon

Gasconade silty clay, in an area of Gasconade-Rock outcrop complex, 3 to 35 percent slopes; in a forest; 1,850 feet west and 4,590 feet north of the southeast corner of sec. 33, T. 31 N., R. 5 E.; USGS Coldwater topographic quadrangle; UTM coordinates 4,134,080 meters N. and 721,590 meters E., Zone 15, NAD27.

A—0 to 4 inches; dark brown (10YR 3/3) silty clay, dark brown (10YR 3/3) dry; moderate fine granular structure; friable; many very fine and common fine and medium roots; 8 percent subangular dolostone gravel; neutral; abrupt wavy boundary.

Bw—4 to 13 inches; dark brown (7.5YR 3/4) very gravelly clay; moderate fine subangular blocky structure; firm; common very fine roots; 35 percent subangular dolostone gravel and 10 percent dolostone cobbles; slightly alkaline; abrupt wavy boundary.

R—13 inches; dolostone bedrock.

### Range in Characteristics

*Depth to bedrock:* 4 to 20 inches

#### *A horizon:*

Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 3

Fine-earth texture—silty clay

Content of rock fragments—5 to 15 percent

Reaction—slightly acid to slightly alkaline

#### *Bw horizon:*

Color—hue of 7.5YR, 10YR, or 2.5Y, value of 2 to 4, and chroma of 1 to 4

Fine-earth texture—clay, silty clay, silty clay loam, or clay loam

Content of rock fragments—35 to 70 percent

Reaction—slightly acid to slightly alkaline

### Gepp Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Upland

*Position on the landform:* Shoulder or summit

*Parent material:* Clayey residuum weathered from dolostone

*Slope range:* Moderately sloping and strongly sloping (8 to 15 percent)

*Elevation:* 618 feet

*Taxonomic class:* Very-fine, mixed, semiactive, mesic Typic Paleudalfs

### Typical Pedon

Gepp very gravelly silt loam, in an area of Alred-Gepp complex, 8 to 15 percent slopes, stony; in a forest; 2,650 feet north and 1,900 feet east of the southwest corner of sec. 31, T. 31 N., R. 8 E.; USGS Allbright topographic quadrangle; UTM coordinates 4,134,001 meters N. and 747,127 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt wavy boundary.

A—1 to 6 inches; brown (10YR 5/3) very gravelly silt loam; moderate fine granular structure; very friable; many very fine and fine and few medium roots; 37 percent subangular chert gravel and 2 percent chert cobbles; very strongly acid; clear wavy boundary.

Bt1—6 to 12 inches; yellowish red (5YR 5/6) clay; moderate very fine and fine subangular blocky structure; firm; common very fine and fine and few medium and coarse roots; common distinct clay films; 10 percent chert gravel and 1 percent chert cobbles; very strongly acid; clear wavy boundary.

Bt2—12 to 19 inches; yellowish red (5YR 5/6) and strong brown (7.5YR 5/6) clay; weak fine subangular blocky structure; firm; few very fine, fine, medium, and coarse roots; many distinct clay films; 6 percent chert gravel; very strongly acid; clear wavy boundary.

Bt3—19 to 27 inches; yellowish red (5YR 5/8) and red (2.5YR 5/6) clay; moderate very fine subangular blocky structure; firm; few very fine, fine, and medium roots; many distinct clay films; 2 percent chert gravel; very strongly acid; gradual wavy boundary.

Bt4—27 to 36 inches; yellowish red (5YR 5/6) and reddish brown (2.5YR 4/4) clay; moderate very fine angular blocky structure; firm; few very fine and fine roots; many distinct clay films and few prominent clay films; 1 percent chert cobbles; very strongly acid; gradual wavy boundary.

Bt5—36 to 44 inches; strong brown (7.5YR 5/6) and red (2.5YR 4/6) clay; moderate very fine angular blocky structure; firm; few very fine, fine, and medium roots; common medium distinct light brown (7.5YR 6/3) vertical seams; many distinct and few prominent clay films; very strongly acid; clear wavy boundary.

- Bt6—44 to 53 inches; reddish brown (2.5YR 4/4) and strong brown (7.5YR 5/6) clay; moderate very fine angular blocky structure; very firm; few very fine roots; common fine prominent light gray (10YR 7/2) seams; many prominent clay films; very strongly acid; gradual wavy boundary.
- Bt7—53 to 59 inches; weak red (10R 4/4) and yellowish red (5YR 5/6) clay; moderate very fine and fine angular blocky structure; very firm; few very fine roots; common fine prominent light gray (10YR 7/2) seams; many prominent clay films; very strongly acid; abrupt wavy boundary.
- Bt8—59 to 67 inches; red (10R 4/6) and yellowish red (5YR 5/6) clay; strong fine angular blocky structure; very firm; few very fine roots; strong brown (7.5YR 5/6) band; many prominent clay films and common prominent black (10YR 2/1) manganese or iron-manganese stains; strongly acid; clear wavy boundary.
- Bt9—67 to 81 inches; red (2.5YR 4/6) and yellowish red (5YR 5/6) clay; moderate very fine and fine angular blocky structure; very firm; few very fine roots; common prominent clay films and common prominent black (10YR 2/1) manganese or iron-manganese stains; moderately acid.

#### Range in Characteristics

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4  
 Fine-earth texture—silt loam  
 Content of rock fragments—35 to 60 percent  
 Reaction—very strongly acid to moderately acid

#### *E horizon (where present):*

Color—hue of 10YR, value of 4 to 6, and chroma 2 to 4  
 Fine-earth texture—silt loam  
 Content of rock fragments—10 to 70 percent  
 Reaction—strongly acid to slightly acid

#### *Bt horizon (upper part):*

Color—hue of 2.5YR, 5YR, or 7.5YR, value of 3 to 5, and chroma of 4, 6, or 8  
 Fine-earth texture—clay loam, silty clay loam, silty clay, or clay  
 Content of rock fragments—3 to 35 percent  
 Reaction—very strongly acid to moderately acid

#### *Bt horizon (lower part):*

Color—hue of 10R, 2.5YR, 5YR, or 7.5YR, value of 3 to 5, and chroma of 4, 6, or 8  
 Redoximorphic features—iron concentrations in shades of red and brown

Fine-earth texture—clay  
 Content of rock fragments—0 to 15 percent  
 Reaction—strongly acid or moderately acid

### **Gladden Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Permeability class:* Moderate in the upper part and moderately rapid to very rapid in the lower part

*Landform:* Stream valley

*Position on the landform:* High flood plain

*Parent material:* Loamy alluvium

*Slope range:* Nearly level and very gently sloping (0 to 3 percent)

*Elevation:* 830 feet

*Taxonomic class:* Coarse-loamy, siliceous, superactive, mesic Dystric Fluventic Eutrudepts

#### Typical Pedon

Gladden loam, 0 to 3 percent slopes, occasionally flooded; in hardwoods; 2,100 feet east and 1,200 feet north of the southwest corner of sec. 12, T. 31 N., R. 6 W.; in Shannon County; USGS Cedar Grove, Missouri, topographic quadrangle; UTM coordinates 4,139,509 meters N. and 628,462 meters E., Zone 15, NAD27.

Ap1—0 to 5 inches; brown (10YR 4/3) loam; weak fine subangular blocky structure; common fine and medium roots; many fine vesicular pores; moderately acid; clear smooth boundary.

Ap2—5 to 10 inches; brown (10YR 4/3) loam; weak fine subangular blocky structure; common fine roots; many fine vesicular pores; few distinct very dark grayish brown (10YR 3/2) organic stains on faces of peds; moderately acid; clear smooth boundary.

Bw1—10 to 15 inches; dark yellowish brown (10YR 4/4) loam; moderate fine subangular blocky structure; common fine roots; many fine vesicular pores; few distinct dark yellowish brown (10YR 3/4) and very dark grayish brown (10YR 3/2) organic stains on faces of peds; moderately acid; clear smooth boundary.

Bw2—15 to 26 inches; dark yellowish brown (10YR 4/4) loam; moderate fine subangular blocky structure; few fine roots; many fine vesicular and common fine tubular pores; few distinct very dark grayish brown (10YR 3/2) organic stains on faces of peds; moderately acid; clear wavy boundary.

Bw3—26 to 36 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; few fine roots; many fine vesicular pores; few

distinct dark yellowish brown (10YR 3/4) organic stains on faces of peds; moderately acid; clear wavy boundary.

Bw4—36 to 50 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine subangular blocky structure; few fine roots; many fine vesicular pores; few distinct dark yellowish brown (10YR 3/4) organic stains on faces of peds; moderately acid; clear wavy boundary.

Bw5—50 to 58 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; few fine roots; many coarse interstitial pores; few distinct dark yellowish brown (10YR 3/4) organic stains on faces of peds; moderately acid; clear wavy boundary.

2C—58 to 73 inches; very pale brown (10YR 8/3) sand; single grain; moderately acid.

#### Range in Characteristics

*Solum thickness:* 30 to 60 inches

#### *A or Ap horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 2 or 3

Fine-earth texture—loam or silt loam

Content of rock fragments—0 to 10 percent

Reaction—moderately acid to neutral

#### *Bw or BC horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 3, 4, or 6

Fine-earth texture—sandy loam, fine sandy loam, or loam

Content of rock fragments—0 to 10 percent

Reaction—moderately acid to neutral

#### *2C horizon:*

Color—hue of 10YR, value of 3 to 8, and chroma of 2 to 4

Fine-earth texture—coarse sand, sand, or loamy sand

Content of rock fragments—0 to 15 percent

Reaction—strongly acid to slightly acid

### **Hassler Series**

*Depth class:* Deep (40 to 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Mountain

*Position on the landform:* Summit, shoulder, or backslope

*Parent material:* Loamy colluvium and residuum weathered from acid igneous rocks, primarily granite

*Slope range:* Moderately sloping to steep (3 to 25 percent)

*Elevation:* 860 feet

*Taxonomic class:* Fine-loamy, mixed, active, mesic Oxyaquic Hapludults

#### Typical Pedon

Hassler silt loam, 3 to 15 percent slopes, stony; in a forest; 1,190 feet north and 1,350 feet east of the southwest corner of sec. 31, T. 34 N., R. 6 E.; USGS Rhodes Mountain topographic quadrangle; UTM coordinates 4,164,582 meters N. and 727,958 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt smooth boundary.

A—1 to 3 inches; dark yellowish brown (10YR 3/4) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many fine and medium roots; 5 percent granite gravel and 3 percent granite cobbles; strongly acid; abrupt wavy boundary.

E—3 to 6 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; weak very fine subangular blocky structure; friable; many fine and medium roots; 3 percent granite gravel and 3 percent granite cobbles; very strongly acid; clear wavy boundary.

BE—6 to 9 inches; strong brown (7.5YR 4/6) silt loam; moderate very fine subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; 3 percent granite gravel and 3 percent granite cobbles; very strongly acid; clear wavy boundary.

Bt1—9 to 17 inches; strong brown (7.5YR 4/6) loam; moderate very fine subangular blocky structure; firm; common fine and medium roots; few faint clay films on faces of peds; 3 percent granite gravel and 8 percent granite cobbles; very strongly acid; clear wavy boundary.

Bt2—17 to 24 inches; strong brown (7.5YR 4/6) gravelly clay loam; moderate very fine and fine subangular blocky structure; firm; common fine and medium roots; few faint clay films on faces of peds; 16 percent granite gravel and 4 percent granite cobbles; very strongly acid; abrupt wavy boundary.

2Bt3—24 to 31 inches; strong brown (7.5YR 5/6), yellowish brown (10YR 5/8), and dark yellowish brown (10YR 4/4) gravelly loam; weak fine subangular blocky structure; firm; few fine and medium roots; few prominent clay films on faces of peds; few distinct brown (10YR 5/3) clay depletions; few fine prominent dark red (2.5YR

3/6) masses of iron accumulation; 30 percent granite gravel (highly weathered) and 2 percent granite cobbles; very strongly acid; clear wavy boundary.

3BC—31 to 41 inches; brownish yellow (10YR 6/8) bouldery coarse sandy loam; weak coarse prismatic structure; firm; few fine roots; few prominent dark grayish brown (10YR 4/2) clay films along old root channels; light brownish gray (10YR 6/2) clay depletions on faces of peds; 12 percent granite gravel, 2 percent granite cobbles, and 20 percent granite boulders; very strongly acid; gradual wavy boundary.

3C—41 to 48 inches; strong brown (7.5YR 5/6 and 7.5YR 4/6) bouldery coarse sandy loam; massive; firm; few fine roots near top of horizon; few prominent dark grayish brown clay films in root channels; many prominent light gray (10YR 7/2) clay depletions along bedding planes; 4 percent granite gravel and 25 percent granite boulders; very strongly acid.

3R—48 inches; granite

#### Range in Characteristics

*Depth to bedrock:* 40 to 60 inches

*Solum thickness:* 40 to 59 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 or 4, chroma of 3 or 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 10 percent

Reaction—very strongly acid to moderately acid

*E horizon, EB horizon (where present), and BE horizon:*

Color—hue of 7.5YR or 10YR, value of 4, chroma of 3, 4, or 6

Fine-earth texture—silt loam

Content of rock fragments—0 to 10 percent

Reaction—very strongly acid to moderately acid

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 4 or 6

Fine-earth texture—loam, silt loam, clay loam, or silty clay loam

Content of rock fragments—0 to 20 percent

Reaction—very strongly acid or strongly acid

*2Bt horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 or 5, chroma of 2, 3, 4, 6, or 8

Fine-earth texture—loam

Content of rock fragments—10 to 50 percent

Reaction—very strongly acid or strongly acid

*3BC and 3C horizons:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, chroma of 4, 6, or 8

Fine-earth texture—coarse sandy loam

Content of rock fragments—4 to 50 percent

Reaction—very strongly acid or strongly acid

### Higdon Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained

*Permeability class:* Moderately slow

*Landform:* Stream valley

*Position on the landform:* High flood plain or footslope

*Parent material:* Silty and loamy sediments derived from loess, colluvium and alluvium

*Slope range:* Nearly level and very gently sloping (0 to 3 percent)

*Elevation:* 470 feet

*Taxonomic class:* Fine-silty, mixed, active, mesic Aquic Hapludalfs

#### Typical Pedon

Higdon silt loam, 0 to 3 percent slopes, occasionally flooded; in a pasture; 2,700 feet east and 3,900 feet south of the northwest corner of sec. 36, T. 31 N., R. 7 E.; USGS Allbright topographic quadrangle; UTM coordinates 4,133,744 meters N. and 745,730 meters E., Zone 15, NAD27.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; friable; many very fine and fine roots throughout; common fine black (10YR 2/1) masses of manganese accumulation throughout; 2 percent chert gravel; neutral; abrupt wavy boundary.

A—5 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, pale brown (10YR 6/3) dry; moderate very fine subangular blocky structure parting to weak fine granular; friable; common very fine and fine roots throughout; common fine black (10YR 2/1) masses of manganese accumulation throughout; common fine black (10YR 2/1) manganese nodules throughout; neutral; clear wavy boundary.

E—9 to 16 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine subangular blocky structure; friable; common very fine and fine roots throughout; common faint discontinuous dark grayish brown (10YR 4/2) silt coats on faces of peds; common fine strong brown (7.5YR 5/8) iron nodules throughout; common fine black (10YR 2/1) masses of

- manganese accumulation throughout; common fine black (10YR 2/1) manganese nodules throughout; neutral; clear wavy boundary.
- Bt1—16 to 23 inches; yellowish brown (10YR 5/4) silt loam; moderate very fine subangular blocky structure; friable; few very fine roots between peds; many faint brown (10YR 5/3) iron depletions; few faint discontinuous clay films on faces of peds; common fine strong brown (7.5YR 5/8) iron nodules throughout; common fine black (10YR 2/1) masses of manganese accumulation throughout; common fine black (10YR 2/1) manganese nodules throughout; 3 percent chert gravel; neutral; clear wavy boundary.
- Bt2—23 to 33 inches; brown (10YR 5/3) silt loam; moderate very fine and fine subangular blocky structure; friable; few very fine roots between peds; many fine and medium faint yellowish brown (10YR 5/4) masses of iron accumulation; common distinct discontinuous clay films on faces of peds; common fine strong brown (7.5YR 5/8) iron nodules throughout; common fine black (10YR 2/1) masses of manganese accumulation throughout; common fine black (10YR 2/1) manganese nodules throughout; common fine and medium grayish brown (10YR 5/2) iron depletions pedogenic between peds; neutral; clear wavy boundary.
- 2Bt3—33 to 40 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent grayish brown (10YR 5/2) silt loam; moderate very fine and fine subangular blocky structure; friable; few very fine roots between peds; many distinct discontinuous clay films on faces of peds; common medium dark yellowish brown (10YR 4/6) masses of iron-manganese accumulation throughout; few fine strong brown (7.5YR 5/8) iron concretions throughout; few fine black (10YR 2/1) manganese nodules; neutral; clear wavy boundary.
- 2Bt4—40 to 51 inches; 55 percent grayish brown (10YR 5/2) and 45 percent yellowish brown (10YR 5/4) silt loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots between peds; many medium faint yellowish brown (10YR 5/6) masses of iron accumulation; many distinct continuous clay films on faces of peds; few medium strong brown (7.5YR 5/8) iron nodules throughout; common medium black (10YR 2/1) manganese nodules throughout; neutral; clear wavy boundary.
- 2Bt5—51 to 65 inches; 55 percent grayish brown (10YR 5/2) and 45 percent yellowish brown (10YR 5/4) silt loam; weak medium prismatic structure parting to moderate fine subangular blocky; firm; few very fine roots between peds; few prominent discontinuous dark gray (10YR 4/1) clay films on faces of peds; many distinct discontinuous clay films on faces of peds; common fine dark yellowish brown (10YR 5/6) masses of iron accumulation throughout; few medium strong brown (7.5YR 5/8) iron concretions throughout; common medium black (10YR 2/1) manganese nodules throughout; neutral; clear wavy boundary.
- 2Bt6—65 to 76 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent grayish brown (10YR 5/2) silt loam; moderate medium prismatic structure parting to weak fine subangular blocky; firm; few very fine roots between peds; few prominent discontinuous dark gray (10YR 4/1) clay films on vertical faces of peds; few distinct discontinuous clay films on faces of peds; common fine dark yellowish brown (10YR 4/6) masses of iron accumulation throughout; common medium black (10YR 2/1) masses of iron-manganese accumulation throughout; few fine black (10YR 2/1) iron-manganese concretions throughout; neutral; gradual wavy boundary.
- 2Bt7—76 to 91 inches; 50 percent yellowish brown (10YR 5/6), 30 percent yellowish brown (10YR 5/4), and 20 percent grayish brown (10YR 5/2) silt loam; weak medium prismatic structure; firm; few very fine roots between peds; few prominent discontinuous gray (10YR 5/1) clay films on vertical faces of peds; few fine dark yellowish brown (10YR 4/6) iron-manganese concretions throughout; few fine black (10YR 2/1) iron-manganese concretions throughout; neutral.

#### Range in Characteristics

##### *Ap and A horizons:*

Color—hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3

Fine-earth texture—silt loam

Content of rock fragments—0 to 2 percent

Reaction—strongly acid to neutral

##### *E horizon:*

Color—hue 10YR or 2.5Y, value of 5, and chroma of 3

Fine-earth texture—silt loam

Content of rock fragments—0 to 2 percent

Reaction—strongly acid to neutral

##### *Bt horizon:*

Color—hue of 10YR or 2.5Y, value of 5, and chroma of 2, 3, 4, or 6

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 3 percent  
Redoximorphic features—iron depletions with  
chroma of 2 or less

Reaction—strongly acid to neutral

*Btg horizon (where present), 2Btg horizon, and 2Bt horizon (where present):*

Color—hue of 10YR or 2.5Y, value of 5 or 6, and  
chroma of 2, 3, 4, or 6

Fine-earth texture—loam, silt loam, clay loam, or  
silty clay loam

Content of rock fragments—0 to 15 percent

Redoximorphic features—iron depletions with  
chroma of 2 or less

Reaction—strongly acid to neutral

### **Irondale Series**

*Depth class:* Moderately deep (20 to 40 inches)

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Mountain

*Position on the landform:* Shoulder and backslope

*Parent material:* Residuum from fine grained igneous  
rock

*Slope range:* Strongly sloping to steep (8 to 35  
percent)

*Elevation:* 830 feet

*Taxonomic class:* Loamy-skeletal, mixed, active,  
mesic Typic Hapludults

#### **Typical Pedon**

Irondale gravelly silt loam, 15 to 35 percent slopes,  
extremely bouldery; in a forest; 275 feet south and  
1,100 feet east of the northwest corner of sec. 24,  
T. 33 N., R. 6 E.; USGS Fredericktown topographic  
quadrangle; UTM coordinates 4,157,702 meters N.  
and 735,462 meters E., Zone 15, NAD27.

Oi—0 to 2 inches; partially decomposed leaves, twigs,  
and roots; abrupt smooth boundary.

A—2 to 5 inches; dark brown (10YR 3/3) gravelly silt  
loam, pale brown (10YR 6/3) dry; moderate very  
fine and fine granular structure; very friable; many  
fine and medium and few coarse roots; 3 percent  
rhyolite stones, 2 percent rhyolite cobbles, and 11  
percent rhyolite gravel; strongly acid; abrupt wavy  
boundary.

BE—5 to 10 inches; yellowish brown (10YR 5/4)  
gravelly silt loam, very pale brown (10YR 7/4) dry;  
weak very fine subangular blocky structure; very  
friable; many fine and medium and common  
coarse roots; few faint clay films on faces of peds;  
1 percent rhyolite cobbles and 14 percent

subangular rhyolite gravel; very strongly acid;  
clear wavy boundary.

Bt—10 to 23 inches; strong brown (7.5YR 5/6) very  
gravelly silt loam; moderate very fine subangular  
blocky structure; friable; common fine and  
medium and few coarse roots; common faint clay  
films on faces of peds; 12 percent rhyolite cobbles  
and 30 percent rhyolite gravel; very strongly acid;  
clear wavy boundary

2R—23 inches; rhyolite bedrock.

#### **Range in Characteristics**

*Depth to bedrock:* 20 to 40 inches

*A horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4,  
and chroma of 2 or 3

Fine-earth texture—silt loam

Content of rock fragments—15 to 50 percent

Reaction—very strongly acid to moderately acid,  
unless limed

*BE horizon or E horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 4 to 6,  
and chroma of 3, 4, or 6

Fine-earth texture—silt loam

Content of rock fragments—10 to 50 percent

Reaction—extremely acid to moderately acid,  
unless limed

*Bt horizon (upper part):*

Color—hue of 7.5YR or 10YR, value of 4 or 5,  
and chroma of 3, 4, or 6

Fine-earth texture—silt loam

Content of rock fragments—35 to 60 percent

Reaction—very strongly acid or strongly acid

*Bt horizon (lower part) or 2Bt horizon (where present):*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR,  
value of 4 or 5, and chroma of 4 or 6

Fine-earth texture—loam, silty clay loam, or clay  
loam

Content of rock fragments—35 to 60 percent

Reaction—very strongly acid or strongly acid

### **Jamesfin Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Stream valley

*Position on the landform:* High flood plain

*Parent material:* Silty alluvium

*Slope range:* Nearly level and very gently sloping (0 to  
3 percent)

*Elevation:* 510 feet

*Taxonomic class:* Fine-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts

### Typical Pedon

Jamesfin silt loam, 0 to 3 percent slopes, occasionally flooded; in a pasture; 1,800 feet north and 3,250 feet east of the southwest corner of sec. 21, T. 31 N., R. 8 E.; USGS Allbright topographic quadrangle; UTM coordinates 4,137,004 meters N. and 750,561 meters E., Zone 15, NAD27.

Ap—0 to 6 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; very friable; many very fine and fine roots; moderately acid; abrupt wavy boundary.

A—6 to 15 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak very fine subangular blocky structure parting to moderate fine granular; very friable; common very fine and fine roots; many very fine vesicular pores; moderately acid; clear wavy boundary.

Bw1—15 to 25 inches; dark yellowish brown (10YR 4/4) silt loam; weak very fine and fine subangular blocky structure; very friable; few very fine and fine roots; many very fine vesicular pores; few faint patchy dark brown (10YR 3/3) organic coats on faces of peds; moderately acid; clear wavy boundary.

Bw2—25 to 37 inches; dark yellowish brown (10YR 4/4) silt loam; weak very fine subangular blocky structure; friable; few very fine and fine roots; many very fine and fine vesicular pores; very few faint patchy very pale brown (10YR 7/3) dry silt coats on faces of peds; few distinct patchy dark brown (10YR 3/3) organic coats on faces of peds; slightly acid; clear wavy boundary.

Bw3—37 to 46 inches; dark yellowish brown (10YR 4/4) silt loam; weak very fine subangular blocky structure; friable; few very fine and fine roots; many very fine and fine vesicular pores; few distinct patchy dark yellowish brown (10YR 3/4) organic coats on faces of peds; few distinct patchy light yellowish brown (10YR 6/4) moist silt coats on faces of peds; few distinct patchy very pale brown (10YR 7/3) dry silt coats on faces of peds; few fine masses of iron-manganese accumulation; 1 percent chert gravel; slightly acid; clear wavy boundary.

Bw4—46 to 53 inches; yellowish brown (10YR 5/4) silt loam; weak very fine and fine subangular blocky structure; friable; many very fine and fine vesicular pores; common prominent patchy dark brown (10YR 3/3) coats and common prominent patchy very pale brown (10YR 7/3) dry silt coats; few fine masses of iron-manganese accumulation; 1

percent chert gravel; slightly acid; clear wavy boundary.

2BC—53 to 62 inches; light yellowish brown (10YR 6/4) and dark yellowish brown (10YR 4/4) loam; weak very fine subangular blocky structure; very friable; many very fine and fine vesicular and many fine tubular pores; common prominent patchy dark brown (7.5YR 3/2) coats; 5 percent gravel; slightly acid.

### Range in Characteristics

#### *Ap and A horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 of 3

Fine-earth texture—silt loam

Content of rock fragments—0 to 3 percent

Reaction—moderately acid to slightly alkaline

#### *Bw horizon:*

Color—hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 3, 4, or 6

Fine-earth texture—silt loam

Content of rock fragments—0 to 5 percent

Reaction—moderately acid to slightly alkaline

#### *BC horizon (where present) and 2BC horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4

Fine-earth texture—silt loam, loam, or fine sandy loam

Content of rock fragments—0 to 5 percent

Reaction—moderately acid to slightly alkaline

### Jonca Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderate above the fragipan and slow within the fragipan

*Landform:* Upland

*Position on the landform:* Summit

*Parent material:* Thin layer of loess and the underlying loamy residuum weathered from sandstone

*Slope range:* Moderately sloping (3 to 8 percent)

*Elevation:* 1,060 feet

*Taxonomic class:* Fine-loamy, mixed, active, mesic Oxyaquic Fragiudalfs

### Typical Pedon

Jonca silt loam, 3 to 8 percent slopes; in a pasture; 1,400 feet west and 2,000 feet north of the southeast corner of sec. 24, T. 36 N., R. 6 E.; in Ste. Genevieve County; USGS Sprott topographic quadrangle; UTM coordinates 4,187,890 meters N. and 736,530 meters E., Zone 15, NAD27.

- Ap—0 to 5 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine roots; neutral; clear smooth boundary.
- E—5 to 12 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine roots; slightly acid; clear smooth boundary.
- Bt1—12 to 18 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; few faint clay films; strongly acid; gradual smooth boundary.
- Bt2—18 to 32 inches; strong brown (7.5YR 5/6) silty clay loam; weak fine subangular blocky structure; firm; common fine roots; few faint clay films; very strongly acid; clear smooth boundary.
- 2Btx1—32 to 40 inches; yellowish brown (10YR 5/4) loam; moderate coarse prismatic structure; very hard; 60 percent brittle; few distinct clay films on faces of peds; very strongly acid; abrupt smooth boundary.
- 2Btx2—40 to 52 inches; yellowish brown (10YR 5/4) loam; many coarse distinct light brownish gray (10YR 6/2) and dark yellowish brown (10YR 3/4) iron depletions; weak very coarse prismatic structure; very hard; 60 percent brittle; few distinct clay films on peds; very strongly acid; abrupt smooth boundary.
- 3Bt3—52 to 62 inches; yellowish red (5YR 5/6) clay loam; weak fine subangular blocky structure; hard; brittle; few distinct clay films; 15 percent sandstone paragravel; very strongly acid; clear irregular boundary.
- 3R—62 inches; sandstone.

### Range in Characteristics

*Depth to 2Btx horizon:* 24 to 38 inches.

#### *Ap horizon:*

Color—hue of 10YR, value of 3, and chroma of 3  
 Fine-earth texture—silt loam  
 Content of rock fragments—0 to 1 percent  
 Reaction—very strongly acid to moderately acid, unless limed

#### *E horizon:*

Color—hue of 10YR, value of 4, and chroma of 3  
 Fine-earth texture—silt loam  
 Content of rock fragments—0 to 1 percent  
 Reaction—extremely acid to moderately acid, unless limed

#### *Bt horizon:*

Color—hue of 7.5YR, value of 5, and chroma of 6  
 Fine-earth texture—loam, silt loam, or silty clay loam

Content of rock fragments—0 to 1 percent  
 Reaction—extremely acid to strongly acid

#### *2Btx horizon:*

Color—hue of 10YR, value of 5, and chroma of 4  
 Fine-earth texture—sandy loam, fine sandy loam, or loam  
 Content of rock fragments—0 to 10 percent  
 Reaction—extremely acid to strongly acid

#### *3Bt horizon:*

Color—hue of 5YR, value of 5, and chroma of 6  
 Fine-earth texture—loam or clay loam  
 Content of rock fragments—0 to 15 percent  
 Reaction—very strongly acid or strongly acid

## Killarney Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderate above the fragipan and very slow in the fragipan

*Landform:* Mountain

*Position on the landform:* Lower backslope and footslope

*Parent material:* Colluvial materials from loess and residuum from rocks of igneous origin

*Slope range:* Moderately steep and steep (15 to 45 percent)

*Elevation:* 650 feet

*Taxonomic class:* Loamy-skeletal, mixed, active, mesic Typic Fragiudults

### Typical Pedon

Killarney very cobbly silt loam (fig. 15), in an area of Killarney-Frenchmill complex, 15 to 45 percent slopes, rubbly; in a forest; 200 feet east and 2,600 feet north of the southwest corner of sec. 35, T. 33 N., R. 5 E.; USGS Rhodes Mountain topographic quadrangle; UTM coordinates 4,153,723 meters N. and 723,525 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt wavy boundary.

A—1 to 5 inches; very dark grayish brown (10YR 3/2) very cobbly silt loam, gray (10YR 6/1) dry; moderate medium granular structure; friable; many fine and medium roots; 35 percent granite gravel, 20 percent granite cobbles, and 1 percent granite stones; strongly acid; clear smooth boundary.

E1—5 to 10 inches; brown (10YR 5/3) very cobbly silt loam, very pale brown (10YR 8/2) dry; weak thin platy structure parting to moderate medium subangular blocky; friable; many fine and medium

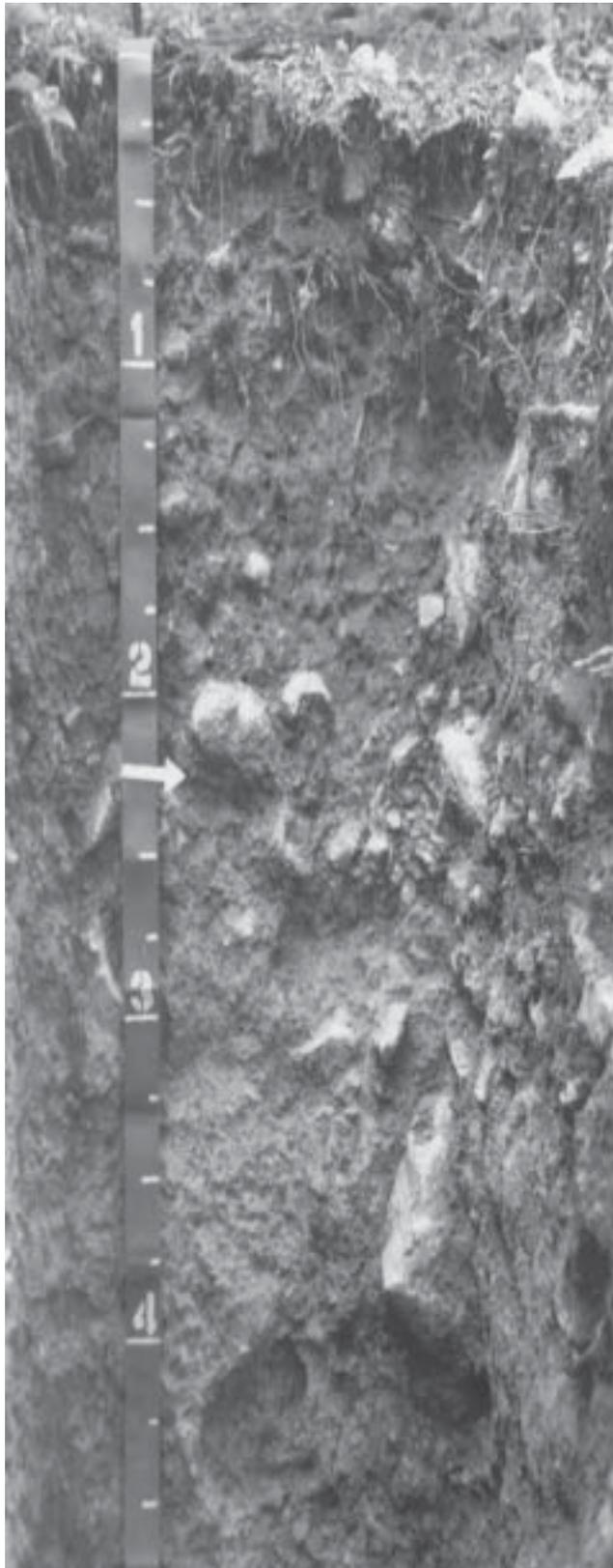


Figure 15.—Profile of Killarney very cobbly silt loam. A fragipan occurs below a depth of 27 inches. Depth is marked in feet.

and few coarse roots; 30 percent granite gravel and 15 percent granite cobbles; strongly acid; gradual smooth boundary.

E2—10 to 16 inches; pale brown (10YR 6/3) very cobbly silt loam, very pale brown (10YR 8/3) dry; weak thin platy structure parting to moderate medium subangular blocky; friable; common fine and medium roots; 30 percent granite gravel and 20 percent granite cobbles; very strongly acid; clear smooth boundary.

BE—16 to 22 inches; light yellowish brown (10YR 6/4) very cobbly silt loam; moderate fine subangular blocky structure; friable; common fine and medium roots; 25 percent granite gravel and 25 percent granite cobbles; very strongly acid; clear wavy boundary.

Bt—22 to 32 inches; light yellowish brown (10YR 6/4) very gravelly silt loam; moderate fine and medium subangular blocky structure; friable; many fine and medium and few coarse roots; common fine dark yellowish brown (10YR 4/6) mottles; continuous clay films; 40 percent granite gravel and 15 percent granite cobbles; very strongly acid; abrupt wavy boundary.

2Btx1—32 to 41 inches; yellowish brown (10YR 5/6) extremely gravelly silt loam; weak very coarse prismatic structure parting to weak medium platy structure parting to weak medium subangular blocky; very firm; brittle; few medium roots; few medium strong brown (7.5YR 5/6) mottles; discontinuous clay films on vertical faces of peds; many coarse light brownish gray (10YR 6/2) soft iron depletions pedogenic between peds; 40 percent granite gravel, 20 percent granite cobbles, and 5 percent granite stones; very strongly acid; clear smooth boundary.

2Btx2—41 to 48 inches; strong brown (7.5YR 4/6) very gravelly silt loam; weak very coarse prismatic structure parting to weak medium platy structure parting to weak medium subangular blocky; very firm; brittle; few fine roots; common medium distinct dark yellowish brown (10YR 4/6) mottles; continuous clay films on vertical faces of peds; common coarse brown (7.5YR 5/2) soft iron depletions pedogenic between peds; 40 percent granite gravel and 15 percent granite cobbles; very strongly acid; abrupt smooth boundary.

3Bt—48 to 55 inches; strong brown (7.5YR 5/6) very gravelly loam; moderate medium subangular blocky structure; firm; few fine and medium roots; many fine prominent reddish brown (5YR 5/3) mottles; continuous clay films on faces of peds; common coarse pinkish gray (7.5YR 6/2) soft iron depletions pedogenic between peds; 42 percent

granite gravel and 18 percent granite cobbles; very strongly acid; clear smooth boundary.

4Btx<sup>1</sup>—55 to 64 inches; strong brown (7.5YR 5/6) extremely cobbly loam; weak medium platy structure parting to moderate fine subangular blocky; very firm; brittle; few fine roots; continuous clay films on faces of peds; 40 percent granite gravel and 30 percent granite cobbles; very strongly acid; abrupt smooth boundary.

4Btx<sup>2</sup>—64 to 73 inches; strong brown (7.5YR 4/6) extremely cobbly loam; moderate fine subangular blocky structure; very firm; brittle; few fine roots; few medium prominent reddish brown (5YR 5/3) and few fine distinct yellowish red (5YR 4/6) mottles; few coarse pinkish gray (7.5YR 6/2) soft iron depletions pedogenic between peds; 35 percent granite gravel and 30 percent granite cobbles; very strongly acid.

#### Range in Characteristics

*Depth to 2Btx horizon:* 26 to 34 inches

*Depth to bedrock:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—35 to 60 percent

Reaction—very strongly acid to moderately acid

#### *E and BE horizons:*

Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 or 4

Fine-earth texture—silt loam

Content of rock fragment—15 to 50 percent

Reaction—very strongly acid to moderately acid

#### *Bt horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4 or 6

Redoximorphic features—iron segregations in shades of brown or gray

Fine-earth texture—silt loam

Content of rock fragments—35 to 60 percent

Reaction—very strongly acid or strongly acid

#### *2Btx and 4Btx<sup>1</sup> horizons:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2, 3, 4, or 6

Fine-earth texture—silt loam, loam, or clay loam

Content of rock fragments—25 to 75 percent

Reaction—extremely acid or very strongly acid

#### *3Bt horizon:*

Color—hue of 2.5YR, 5YR, or 7.5YR, value of 3 to 5, and chroma of 4 or 6

Fine-earth texture—loam or clay loam

Content of rock fragments—15 to 60 percent

Reaction—very strongly acid or strongly acid

### **Lily Series**

*Depth class:* Moderately deep (20 to 40 inches)

*Drainage class:* Well drained

*Permeability class:* Moderately rapid

*Landform:* Upland

*Position on the landform:* Summit or shoulder

*Parent material:* Residuum from sandstone

*Slope range:* Moderately sloping and strongly sloping (3 to 15 percent)

*Elevation:* 835 feet

*Taxonomic class:* Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

#### Typical Pedon

Lily silt loam, in an area of Lily-Ramsey complex, 3 to 8 percent slopes; in a forest; 1,200 feet south and 1,740 feet west of the northeast corner of sec. 24, T. 34 N., R. 6 E.; USGS Knob Lick topographic quadrangle; UTM coordinates 4,168,808 meters N. and 736,723 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt smooth boundary.

A—1 to 3 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; very friable; many fine, medium, and coarse roots; strongly acid; abrupt smooth boundary.

E—3 to 9 inches; brown (7.5YR 5/4) silt loam; moderate fine granular structure; friable; many fine, medium, and coarse roots; very strongly acid; clear wavy boundary.

Bt1—9 to 18 inches; brown (7.5YR 4/4) clay loam; moderate very fine subangular blocky structure; friable; common fine, medium, and coarse roots; common distinct brown (10YR 5/3) clay films on faces of peds; few pale brown (10YR 6/3) silt coats on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—18 to 25 inches; brown (7.5YR 4/4) clay loam; moderate fine subangular blocky structure; friable; common fine and medium roots; few distinct brown (10YR 5/3) clay films on faces of peds; few pale brown (10YR 6/3) silt coats in root channels and/or pores; very strongly acid.

R—25 inches; sandstone bedrock.

#### Range in Characteristics

*Depth to bedrock:* 20 to 40 inches

*A or Ap horizon:*

Color—hue of 7.5YR or 10YR, value of 2 to 6, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 15 percent

Reaction—extremely acid to strongly acid

*E horizon or AB, BA, or BE horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1, 2, 3, 4, 6, or 8

Fine-earth texture—fine sandy loam or silt loam

Content of rock fragments—0 to 15 percent

Reaction—extremely acid to strongly acid

*Bt horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4, 6, or 8

Fine-earth texture—loam or clay loam

Content of rock fragments—0 to 20 percent

Reaction—extremely acid to strongly acid

*BC or C horizon (where present):*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4, 6, or 8

Fine-earth texture—loamy sand, sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

Content of rock fragments—0 to 35 percent

Reaction—extremely acid to strongly acid

**Loughboro Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Permeability class:* Slow

*Landform:* Mountain basin

*Position on the landform:* Summit

*Parent material:* Loess overlying loamy and clayey sediments from granite bedrock

*Slope range:* Nearly level and very gently sloping (0 to 3 percent)

*Elevation:* 1,065 feet

*Taxonomic class:* Fine, smectitic, mesic Aeric Glossaqualfs

**Typical Pedon**

Loughboro silt loam, 0 to 3 percent slopes; in a pasture; 1,190 feet west and 1,200 feet north of the southeast corner of sec. 19, T. 34 N., R. 6 E.; USGS Wachita Mountain topographic quadrangle; UTM coordinates 4,167,845 meters N. and 728,800 meters E., Zone 15, NAD27.

Ap—0 to 4 inches; 50 percent dark grayish brown (10YR 4/2) and 50 percent grayish brown (10YR

5/2) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; very friable; many fine roots; few prominent dark brown (7.5YR 3/4) iron stains on faces of peds; slightly acid; abrupt smooth boundary.

E1—4 to 7 inches; 50 percent pale brown (10YR 6/3) and 50 percent brown (10YR 4/3) silt loam; weak very fine subangular blocky structure parting to weak very fine and fine granular; very friable; common fine roots; few prominent dark brown (7.5YR 3/4) iron stains on faces of peds; few black (10YR 2/1) manganese or iron-manganese stains on faces of peds; neutral; abrupt smooth boundary.

E2—7 to 12 inches; 50 percent yellowish brown (10YR 5/4) and 50 percent pale brown (10YR 6/3) silt loam; weak very fine subangular blocky structure parting to weak very fine granular; very friable; common very fine and fine roots; many fine pores; few prominent yellowish brown (10YR 5/8) iron stains on faces of peds; few prominent skeletans on faces of peds; moderately acid; abrupt wavy boundary.

Bt/E—12 to 17 inches; 65 percent light brownish gray (10YR 6/2) silty clay loam (Bt); strong medium prismatic structure parting to moderate fine and medium subangular blocky; firm; common very fine and fine roots; common faint clay films on faces of peds; common fine strong brown (7.5YR 4/6) masses of iron accumulation; extremely acid; 35 percent light gray (10YR 7/2) silt loam (E); friable; very strongly acid; abrupt wavy boundary.

Btg1—17 to 25 inches; 60 percent grayish brown (10YR 5/2) and 40 percent brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; common very fine and fine roots; many distinct clay films on faces of peds; few prominent clay films on faces of peds; few prominent skeletans on faces of peds; common fine yellowish brown (10YR 5/6) masses of iron accumulation; extremely acid; clear wavy boundary.

Btg2—25 to 36 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium prismatic structure parting to moderate very fine subangular blocky; friable; few very fine and fine roots; common prominent clay films on faces of peds; common distinct clay films on faces of peds; common manganese or iron-manganese stains on faces of peds; few skeletans on faces of peds; many fine yellowish red (5YR 5/8) masses of iron accumulation; extremely acid; gradual wavy boundary.

Btg3—36 to 45 inches; light brownish gray (10YR 6/2)

silty clay loam; weak medium prismatic structure parting to moderate very fine subangular blocky; friable; few very fine and fine roots; many distinct clay films on faces of peds; few prominent skeletalons on faces of peds; many medium yellowish red (5YR 5/8) masses of iron accumulation; very strongly acid; gradual wavy boundary.

2BCg—45 to 65 inches; gray (10YR 6/1) silty clay loam; weak very fine subangular blocky structure; friable; few distinct clay films on faces of peds; few prominent skeletalons on faces of peds; many medium dark yellowish brown (10YR 4/6) masses of iron accumulation; very strongly acid; gradual wavy boundary.

2Cg—65 to 81 inches; gray (10YR 6/1) silt loam; massive; friable; few prominent skeletalons on faces of peds; many fine and medium dark yellowish brown (10YR 4/6) masses of iron accumulation; 1 percent gravel; very strongly acid.

#### Range in Characteristics

*Solum thickness:* 28 to 65 inches

#### *A or Ap horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4

Fine-earth texture—silt loam

Reaction—very strongly acid or strongly acid, unless limed

#### *E horizon:*

Color—hue of 10YR, value of 4 to 6, and chroma of 3, 4, or 6

Fine-earth texture—silt loam

Reaction—very strongly acid or strongly acid, unless limed

#### *Bt/E horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 4 (Bt); hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 2 (E)

Fine-earth texture—silty clay loam or silty clay (Bt); silt loam (E)

Content of rock fragments—0 to 10 percent

Reaction—extremely acid to strongly acid

#### *Btg horizon:*

Color—hue of 7.5YR, 10YR, or 2.5Y, value of 5 or 6, and chroma of 2 or 3

Fine-earth texture—silty clay loam or silty clay

Content of rock fragments—0 to 10 percent

Reaction—extremely acid to strongly acid

#### *2BCg and 2Cg horizons:*

Color—hue of 7.5YR, 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 10 percent

Reaction—extremely acid to strongly acid

### **Marquand Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Valley

*Position on the landform:* High stream terrace and footslope

*Parent material:* Silty and loamy sediments derived from loess, colluvium, and alluvium

*Slope range:* Moderately sloping (3 to 8 percent)

*Elevation:* 630 feet

*Taxonomic class:* Fine-silty, mixed, active, mesic Aquic Hapludults

#### Typical Pedon

Marquand silt loam, 3 to 8 percent slopes; in a pasture; 3,300 feet south and 2,100 feet east of the northwest corner of sec. 34, T. 31 N., R. 8 E.; USGS Allbright topographic quadrangle; UTM coordinates 4,133,805 meters N. and 751,938 meters E., Zone 15, NAD27.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; very friable; many very fine and fine roots; common very fine pores; moderately acid; abrupt wavy boundary.

E—5 to 8 inches; dark yellowish brown (10YR 4/6) silt loam; moderate fine subangular blocky structure; friable; many very fine and fine roots; moderately acid; clear wavy boundary.

Bt1—8 to 16 inches; strong brown (7.5YR 4/6) silty clay loam; moderate fine subangular blocky structure; friable; many very fine and fine and few medium roots; few faint clay films; very strongly acid; clear wavy boundary

Bt2—16 to 22 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate fine subangular blocky structure; friable; common very fine and fine roots; common fine distinct brown (10YR 5/3) mottles; few distinct clay films; few distinct pale brown (10YR 6/3) clay depletions in lower part; few fine black masses of iron and manganese accumulation; very strongly acid; clear wavy boundary.

2Bt/E—22 to 28 inches; dark yellowish brown (10YR 4/4) silty clay loam (Bt); moderate fine prismatic structure parting to moderate very fine and fine subangular blocky; friable; light brownish gray

(10YR 6/2) silt (E) 2 millimeters thick covering faces of peds; common very fine and fine matted roots; common fine and medium distinct grayish brown (10YR 5/2) iron depletions; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; common prominent clay films and flows; 4 percent chert gravel; very strongly acid; clear wavy boundary.

2Bt1—28 to 33 inches; dark yellowish brown (10YR 4/6) silt loam; moderate fine and medium subangular blocky structure; friable; few very fine roots; common fine prominent gray (10YR 5/1) iron depletions; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation; common distinct clay films and flows; few distinct gray (10YR 6/1) clay depletions; few very fine iron and manganese concretions; 4 percent gravel; very strongly acid; clear wavy boundary.

2Bt2—33 to 43 inches; yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) silt loam; moderate fine and medium subangular blocky structure; friable; very few very fine roots; few distinct clay films; few fine brown masses of iron accumulation; very few light brownish gray (10YR 6/2) clay depletions; common very fine black masses of iron and manganese accumulation; 3 percent chert and sandstone gravel; very strongly acid; gradual wavy boundary.

3Bt3—43 to 50 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine and medium subangular blocky structure; friable; very few very fine roots; common fine distinct grayish brown (10YR 5/2) iron depletions; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation; few distinct clay films; common very fine black masses of iron and manganese accumulation; 12 percent chert and sandstone gravel and 1 percent cobbles; very strongly acid; clear wavy boundary.

3Bt4—50 to 59 inches; coarsely mottled dark yellowish brown (10YR 4/6), strong brown (7.5YR 4/6), and red (2.5YR 4/6) silty clay loam; moderate fine subangular blocky structure; friable; very few very fine roots; common fine prominent grayish brown (2.5Y 5/2) iron depletions; common prominent clay films and flows; common fine black iron and manganese concretions; 3 percent chert and sandstone gravel; very strongly acid; gradual wavy boundary.

3Bt5—59 to 69 inches; coarsely mottled dark yellowish brown (10YR 4/6), strong brown (7.5YR 5/8), red (2.5YR 4/8), and dark red (2.5YR 3/6) silty clay loam; moderate fine subangular blocky structure; friable; very few very fine roots;

common medium prominent grayish brown (2.5Y 5/2) iron depletions; common prominent clay films and flows; 8 percent fine chert gravel; very strongly acid; gradual wavy boundary.

3Bt6—69 to 80 inches; coarsely mottled yellowish brown (10YR 5/6) and red (2.5YR 4/6) silt loam; moderate medium platy structure parting to moderate fine subangular blocky; firm; very few very fine roots; few fine prominent grayish brown (10YR 5/2) iron depletions; many prominent clay films and flows; 3 percent fine gravel; very strongly acid.

### Range in Characteristics

*Solum thickness:* More than 60 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 3 or 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 1 percent

Reaction—moderately acid or slightly acid

*E horizon:*

Color—hue of 10YR, value of 4 to 6, and chroma of 2, 3, 4, 6, or 8

Fine-earth texture—silt loam or silt

Content of rock fragments—0 to 1 percent

Reaction—moderately acid or slightly acid

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, or 6

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 1 percent

Reaction—very strongly acid to moderately acid

*2Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Fine-earth texture—silty clay loam or silt loam

Content of rock fragments—0 to 7 percent

Reaction—very strongly acid or strongly acid

*3Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 6, and chroma of 4, 6, or 8

Fine-earth texture—loam, silt loam, clay loam, or silty clay loam

Content of rock fragments—0 to 15 percent

Reaction—very strongly acid or strongly acid

### Poynor Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Upland

*Position on the landform:* Shoulder

*Parent material:* Gravelly colluvium weathered from cherty dolostone and the underlying clayey residuum weathered from dolostone

*Slope range:* Strongly sloping (8 to 15 percent)

*Elevation:* 650 feet

*Taxonomic class:* Loamy-skeletal over clayey, siliceous, semiactive, mesic Typic Paleudults

### Typical Pedon

Poynor gravelly silt loam, in an area of Poynor-Clarksville-Scholten complex, 8 to 15 percent slopes, stony; in hardwoods; 1,900 feet north and 1,100 feet east of the southwest corner of sec. 22, T. 29 N., R. 7 E.; in Wayne County; USGS Lowndes, Missouri, topographic quadrangle; UTM coordinates 4,116,510 meters N. and 742,204 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; slightly decomposed plant material;; abrupt wavy boundary.

A—1 to 3 inches; dark grayish brown (10YR 4/2) gravelly silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; very friable; many very fine and fine, common medium, and few coarse roots; 1 percent chert stones, 5 percent chert cobbles, and 25 percent chert gravel; strongly acid; clear smooth boundary.

E—3 to 12 inches; yellowish brown (10YR 5/4) very gravelly silt loam, very pale brown (10YR 7/3) dry; moderate fine subangular blocky structure; very friable; common very fine, fine, and medium and few coarse roots; 5 percent chert cobbles and 30 percent chert gravel; very strongly acid; clear wavy boundary.

Bt1—12 to 23 inches; strong brown (7.5YR 4/6) extremely gravelly silty clay loam; moderate very fine and fine angular blocky structure; firm; common very fine and fine and few medium and coarse roots; common distinct clay films on faces of peds; 5 percent chert cobbles and 60 percent chert gravel; very strongly acid; clear wavy boundary.

2Bt2—23 to 40 inches; reddish brown (2.5YR 4/4) and yellowish brown (10YR 5/4) gravelly clay; weak medium prismatic structure parting to moderate fine angular blocky; very firm; few very fine, fine, medium, and coarse roots; common distinct clay films on faces of peds; 2 percent chert cobbles and 18 percent chert gravel; very strongly acid; gradual wavy boundary.

2Bt3—40 to 60 inches; reddish brown (2.5YR 4/4) and yellowish brown (10YR 5/4) gravelly clay; weak

medium prismatic structure parting to moderate very fine and fine angular blocky; very firm; few fine and few coarse roots; few medium and coarse prominent light brownish gray (10YR 6/2) mottles; common distinct clay films on faces of peds; 3 percent chert cobbles, 5 percent chert stones, 12 percent chert gravel; very strongly acid; gradual wavy boundary.

3Bt4—60 to 80 inches; reddish brown (2.5YR 4/4) and yellowish brown (10YR 5/4) very gravelly clay; moderate fine and medium angular blocky structure; very firm; few fine and few coarse roots; common medium and coarse prominent light brownish gray (10YR 6/2) mottles; common distinct clay films on faces of peds; 35 percent chert gravel; very strongly acid.

### Range in Characteristics

*Depth to 2Bt horizon:* 14 to 40 inches

*Depth to bedrock:* 80 inches or more

*A horizon:*

Color—hue of 10YR, value of 2 to 6, and chroma of 1 to 4

Fine-earth texture—silt loam

Content of rock fragments—15 to 35 percent

Reaction—extremely acid to moderately acid

*E horizon:*

Color—hue of 10YR, value of 2 to 6, and chroma of 1 to 4

Fine-earth texture—silt loam

Content of rock fragments—20 to 50 percent

Reaction—extremely acid to moderately acid

*Bt horizon or BE horizon (where present):*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4, 6, or 8

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—35 to 75 percent

Reaction—very strongly acid or strongly acid

*2Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 5, and chroma of 3, 4, 6, or 8

Fine-earth texture—clay or silty clay

Content of rock fragments—0 to 20 percent

Reaction—very strongly acid or strongly acid

*3Bt horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 5, and chroma of 3, 4, 6, or 8 with gray seams

Fine-earth texture—clay

Content of rock fragments—35 to 75 percent

Reaction—extremely acid to strongly acid

## **Raccoon Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Poorly drained

*Permeability class:* Slow

*Landform:* Stream valley

*Position on the landform:* Low stream terrace

*Parent material:* Loess and silty alluvium

*Slope range:* Nearly level and very gently sloping (0 to 3 percent)

*Elevation:* 530 feet

*Taxonomic class:* Fine-silty, mixed, active, mesic Typic Endoaqualfs

### **Typical Pedon**

Raccoon silt loam, 0 to 3 percent slopes, rarely flooded; in a pasture; 150 feet south and 1,950 feet west of northeast corner of sec. 10, T. 31 N., R. 8 E.; USGS Marquand topographic quadrangle; UTM coordinates 4,141,431 meters N. and 752,102 meters E., Zone 15, NAD27.

Ap—0 to 4 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; moderate very fine granular structure; friable; many very fine and fine roots; 3 percent gravel; neutral; clear smooth boundary.

Eg1—4 to 12 inches; gray (10YR 5/1) silt loam; weak medium platy structure parting to moderate fine granular; friable; many very fine and fine roots; few coarse black (10YR 2/1) iron-manganese concretions; 5 percent gravel; neutral; clear smooth boundary.

Eg2—12 to 17 inches; gray (10YR 5/1) silt loam; weak fine subangular blocky structure; friable; common very fine and fine roots; common medium black (10YR 2/1) iron-manganese concretions; neutral; clear smooth boundary.

Eg3—17 to 26 inches; light brownish gray (10YR 6/2) silt loam; weak fine subangular blocky structure; friable; few very fine and fine roots; few fine strong brown (7.5YR 5/6) masses of iron accumulation and common fine black (10YR 2/1) masses of iron-manganese accumulation; neutral; clear smooth boundary.

Btg1—26 to 36 inches; 50 percent gray (10YR 6/1), 25 percent gray (10YR 5/1), and 25 percent yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; few very fine, fine, and medium roots; few faint clay films; many medium black (10YR 2/1) masses of iron-manganese accumulation; neutral; clear smooth boundary.

Btg2—36 to 47 inches; 70 percent gray (10YR 6/1), 20 percent light yellowish brown (10YR 6/4), and

10 percent light brownish gray (10YR 6/2) silt loam; moderate very fine subangular blocky structure; friable; few very fine roots; few faint clay films; few black (10YR 2/1) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

Btg3—47 to 58 inches; 90 percent gray (10YR 5/1), 5 percent light yellowish brown (10YR 6/4), and 5 percent yellowish brown (10YR 5/4) silt loam; weak very fine subangular blocky structure; friable; common faint clay films; 2 percent gravel; neutral; clear smooth boundary.

Cg1—58 to 68 inches; 40 percent gray (10YR 6/1), 35 percent yellowish brown (10YR 5/4), 15 percent dark yellowish brown (10YR 4/4), and 10 percent gray (10YR 5/1) silt loam; massive; firm; 1 percent chert gravel; neutral; gradual wavy boundary.

Cg2—68 to 80 inches; 40 percent olive brown (2.5Y 4/4), 30 percent light olive brown (2.5Y 5/4), and 30 percent light brownish gray (10YR 6/2) silt loam; massive; firm; neutral.

### **Range in Characteristics**

*Depth to Btg horizon:* 24 to 36 inches

*Solum thickness:* 40 to 75 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 to 6, and chroma of 2 or 3

Fine-earth texture—silt loam

Reaction—strongly acid to neutral

*Eg horizon:*

Color—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2

Redoximorphic features—iron segregations in shades of gray or brown

Fine-earth texture—silt loam

Reaction—strongly acid to neutral

*Btg horizon:*

Color—hue of 10YR, 2.5Y, 5Y, or N, value of 4 to 7, and chroma of 0 to 2

Redoximorphic features—iron segregations in shades of brown, yellow, or gray

Fine-earth texture—silt loam, clay loam, or silty clay loam

Reaction—strongly acid to neutral

*Cg horizon:*

Color—hue of 10YR, 2.5Y, or 5Y, value of 4 to 7, and chroma of 1 or 2

Fine-earth texture—silt loam or loam (some pedons are stratified with loamy fine sand to silty clay)

Reaction—moderately acid to neutral

The Racoon soils in Madison County are taxadjuncts to the Racoon series because they have a lower cation exchange capacity to clay ratio. This difference, however, does not affect the use and management of the soils.

### **Ramsey Series**

*Depth class:* Shallow and very shallow (4 to 20 inches)

*Drainage class:* Somewhat excessively drained

*Permeability class:* Rapid

*Landform:* Plateau

*Position on the landform:* Summit, shoulder, or backslope

*Parent material:* Residuum from sandstone

*Slope range:* Moderately sloping to steep (3 to 25 percent)

*Elevation:* 865 feet

*Taxonomic class:* Loamy, siliceous, subactive, mesic  
Lithic Dystrudepts

#### **Typical Pedon**

Ramsey fine sandy loam, in an area of Ramsey-Rock outcrop complex, 8 to 25 percent slopes; in a forest; 600 feet south and 1,280 feet west of the northeast corner of sec. 24, T. 34 N., R. 6 E.; USGS Knob Lick topographic quadrangle; UTM coordinates 4,168,997 meters N. and 736,840 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt smooth boundary.

A—1 to 3 inches; very dark grayish brown (10YR 3/2) fine sandy loam, brown (10YR 5/3) dry; weak very fine granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; abrupt smooth boundary.

E—3 to 7 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt wavy boundary.

Bw—7 to 17 inches; brown (7.5YR 4/4) fine sandy loam; weak fine subangular blocky structure; friable; common fine and medium roots; 6 percent sandstone flagstones; very strongly acid.

R—17 inches; sandstone bedrock.

#### **Range in Characteristics**

*Depth to bedrock:* 4 to 20 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 1 to 4

Fine-earth texture—fine sandy loam

Content of rock fragments—0 to 15 percent  
Reaction—very strongly acid to moderately acid

*E horizon:*

Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 4

Fine-earth texture—sandy loam or fine sandy loam

Content of rock fragments—0 to 15 percent  
Reaction—very strongly acid to moderately acid

*Bw horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Fine-earth texture—sandy loam or fine sandy loam

Content of rock fragments—0 to 25 percent  
Reaction—very strongly acid or strongly acid

*BC or C horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Fine-earth texture—loam to loamy sand

Content of rock fragments—5 to 35 percent  
Reaction—very strongly acid or strongly acid

### **Relfe Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Excessively drained

*Permeability class:* Rapid

*Landform:* Stream valley

*Position on the landform:* Low flood plain or high flood plain

*Parent material:* Gravelly alluvium

*Slope range:* Nearly level and very gently sloping (0 to 3 percent)

*Elevation:* 520 feet

*Taxonomic class:* Sandy-skeletal, siliceous, mesic  
Mollic Udifluvents

#### **Typical Pedon**

Relfe gravelly sandy loam, 0 to 3 percent slopes, frequently flooded; in a forest; 1,500 feet south and 2,800 feet west of the northeast corner of sec. 28, T. 32 N., R. 8 E.; USGS Marquand topographic quadrangle; UTM coordinates 4,146,349 meters N. and 750,332 meters E., Zone 15, NAD27.

A—0 to 6 inches; dark yellowish brown (10YR 3/4) gravelly coarse sandy loam, brown (10YR 5/3) dry; weak very fine granular structure; very friable; many very fine and fine roots; 16 percent chert gravel and 2 percent chert cobbles; neutral; clear wavy boundary.

- C1—6 to 15 inches; dark yellowish brown (10YR 4/6) very gravelly coarse sand; single grain; very friable; common very fine, fine, medium, and coarse roots; 38 percent chert gravel; neutral; clear wavy boundary.
- C2—15 to 28 inches; brown (10YR 5/3) extremely gravelly coarse sand; single grain; very friable; common very fine and fine roots; 65 percent chert gravel and 3 percent chert cobbles; neutral; clear wavy boundary.
- C3—28 to 64 inches; yellowish brown (10YR 5/4) very gravelly coarse sand; single grain; very friable; few very fine and fine roots; 48 percent chert gravel and 5 percent chert cobbles; neutral.

#### Range in Characteristics

*Depth to bedrock:* 60 inches or more

*A or Ap horizon:*

Color—hue of 7.5YR or 10YR, value of 3, and chroma of 2 to 4

Fine-earth texture—coarse sandy loam or sandy loam

Content of rock fragments—0 to 35 percent

Reaction—moderately acid to neutral

*C horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Fine-earth texture—coarse sand, loamy coarse sand, or sand

Content of rock fragments—35 to 75 percent

Reaction—moderately acid to neutral

### Roselle Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderate

*Landform:* Mountain basin

*Position on the landform:* Terrace and footslope

*Parent material:* Colluvium and alluvium derived from coarse grained, acid igneous rocks, primarily granite

*Slope range:* Moderately sloping (3 to 8 percent)

*Elevation:* 720 feet

*Taxonomic class:* Fine-loamy, mixed, active, mesic Oxyaquic Hapludults

#### Typical Pedon

Roselle silt loam, 3 to 8 percent slopes; in a pasture; 750 feet south and 1,400 feet east of the northwest corner of sec. 33, T. 34 N., R. 5 E.; USGS Rhodes Mountain topographic quadrangle; UTM coordinates

4,165,479 meters N. and 721,233 meters E., Zone 15, NAD27.

Ap—0 to 3 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; friable; many very fine and fine roots; 1 percent fine granite gravel; slightly acid; abrupt wavy boundary.

E—3 to 7 inches; dark yellowish brown (10YR 4/4) silt loam, very pale brown (10YR 7/4) dry; weak medium platy structure parting to weak very fine subangular blocky; friable; common very fine and fine roots; common faint yellowish brown (10YR 5/4) clay depletions; 1 percent fine granite gravel; moderately acid; clear smooth boundary.

Bt1—7 to 15 inches; yellowish brown (10YR 5/6) silt loam; weak coarse subangular blocky structure parting to moderate very fine subangular blocky; friable; common very fine and fine roots; common faint clay films; 1 percent granite gravel and 1 percent granite cobbles; strongly acid; clear smooth boundary.

2Bt2—15 to 22 inches; yellowish brown (10YR 5/8) loam; weak medium prismatic structure parting to moderate very fine and fine subangular blocky; firm; few very fine roots; many faint clay films; few fine distinct yellowish brown (10YR 5/4) clay depletions; 3 percent granite gravel and 1 percent granite cobbles; strongly acid; clear wavy boundary.

2Bt3—22 to 29 inches; yellowish brown (10YR 5/6) clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; very few very fine roots; many distinct clay films and few prominent clay flows; few medium prominent strong brown (7.5YR 4/6) masses of iron and manganese accumulation; 6 percent fine rounded granite gravel; strongly acid; gradual smooth boundary.

2Bt4—29 to 39 inches; yellowish red (5YR 4/6) sandy clay loam; moderate coarse prismatic structure parting to moderate fine subangular blocky; firm; very few very fine roots; common distinct clay films and common prominent clay flows; few prominent brown (10YR 5/3) iron depletions in vertical seams; 5 percent fine rounded granite gravel; very strongly acid; gradual smooth boundary.

2Bt5—39 to 48 inches; strong brown (7.5YR 4/6) sandy clay loam; moderate thick platy structure; firm; few distinct clay films and common prominent clay flows; common yellowish brown (10YR 5/4) masses of iron and manganese accumulation on faces of peds; 4 percent fine

rounded granite gravel; very strongly acid; gradual smooth boundary.

**2Bt6**—48 to 57 inches; strong brown (7.5YR 4/6) coarse sandy loam; moderate thick platy structure; firm; few distinct clay films and common prominent clay flows; common brown (7.5YR 5/3) iron depletions; 4 percent fine rounded granite gravel; very strongly acid; gradual smooth boundary.

**2BC1**—57 to 67 inches; strong brown (7.5YR 5/6) coarse sandy loam; weak thick platy structure; firm; few distinct clay films and few prominent clay flows; few pinkish gray (7.5YR 6/2) iron depletions; few medium black masses of iron and manganese accumulation; 3 percent highly decomposed granite gravel; very strongly acid; gradual smooth boundary.

**2BC2**—67 to 80 inches; strong brown (7.5YR 5/6) coarse sandy loam; weak thick platy structure; friable; very few prominent clay flows; common fine and medium black masses of iron and manganese accumulation; 3 percent highly decomposed granite gravel; very strongly acid.

#### Range in Characteristics

*Depth to 2Bt horizon:* 12 to 22 inches

*Solum thickness:* 45 to 80 inches or more

*A or Ap horizon:*

Color—hue of 10YR, value of 4, and chroma of 3

Fine-earth texture—silt loam

Content of rock fragments—0 to 10 percent

Reaction—moderately acid or slightly acid

*E horizon:*

Color—hue of 10YR, value of 4, and chroma of 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 10 percent

Reaction—moderately acid or slightly acid

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4, 6, or 8

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 10 percent

Reaction—strongly acid to slightly acid

*2Bt horizon (upper part):*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 3, 4, 6, or 8

Fine-earth texture—loam, clay loam, or sandy clay loam

Content of rock fragments—0 to 10 percent

Reaction—very strongly acid or strongly acid

*2Bt (lower part) and 2BC horizons:*

Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3, 4, or 6

Fine-earth texture—coarse sandy loam

Content of rock fragments—0 to 10 percent

Reaction—very strongly acid or strongly acid

#### Rueter Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Somewhat excessively drained

*Permeability class:* Moderate

*Landform:* Steep side slope and narrow ridgetop

*Position on the landform:* Backslope

*Parent material:* Local colluvium

*Slope range:* Moderately steep and steep (15 to 35 percent)

*Elevation:* 480 feet

*Taxonomic class:* Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs

#### Typical Pedon

Rueter very gravelly silt loam, in an area of Alred-Rueter complex, 15 to 35 percent slopes, very stony; in hardwoods; 2,200 feet north and 1,750 feet east of the southwest corner of sec. 11, T. 28 N., R. 5 E.; in Wayne County; USGS Greenville Southwest, Missouri, topographic quadrangle; UTM coordinates 4,110,020 meters N. and 724,470 meters E., Zone 15, NAD27.

**Oi**—0 to 1 inch; slightly decomposed plant material; abrupt wavy boundary.

**A**—1 to 3 inches; brown (10YR 4/3) very gravelly silt loam; moderate very fine and fine granular structure; very friable; many very fine and fine and common medium and coarse roots; many very fine and fine and common medium pores; 35 percent subangular chert gravel; very strongly acid; clear smooth boundary.

**E**—3 to 9 inches; brown (10YR 5/3) gravelly silt loam; weak very fine subangular blocky structure; friable; many very fine and fine and common medium and coarse roots; many very fine and fine and common medium pores; 25 percent subangular chert gravel; very strongly acid; clear smooth boundary.

**BE**—9 to 15 inches; brown (7.5YR 5/4) very gravelly silt loam; moderate very fine and fine subangular blocky structure; friable; many very fine and fine, common medium, and few coarse roots; many very fine and fine pores; 35 percent subangular chert gravel; very strongly acid; clear wavy boundary.

**Bt1**—15 to 24 inches; 80 percent strong brown (7.5YR 5/6) and 20 percent yellowish red (5YR 4/6) very gravelly silt loam; moderate very fine and fine subangular blocky structure; firm; few very fine and fine and few medium roots; many very fine and fine pores; common distinct clay films on faces of peds; few very pale brown (10YR 7/3) silt coats; 50 percent subangular chert gravel; very strongly acid; clear wavy boundary.

**Bt2**—24 to 38 inches; strong brown (7.5YR 4/6) extremely gravelly loam; moderate very fine and fine subangular blocky structure; firm; few very fine, fine, and medium roots; many very fine and fine pores; common distinct clay films on faces of peds; few very pale brown (10YR 7/3) silt coats; common black (10YR 2/1) iron-manganese masses; 5 percent subangular chert cobbles and 55 percent subangular chert gravel; very strongly acid; gradual wavy boundary.

**2Bt3**—38 to 46 inches; 65 percent strong brown (7.5YR 4/6) and 35 percent red (2.5YR 4/6) very gravelly clay loam; moderate fine subangular blocky structure; firm; few very fine and fine roots; many very fine and fine pores; common prominent clay films on faces of peds; 10 percent subangular chert cobbles and 45 percent subangular chert gravel; strongly acid; clear wavy boundary.

**3Bt4**—46 to 59 inches; 70 percent red (2.5YR 4/6) and 30 percent strong brown (7.5YR 5/8) gravelly clay; strong fine and medium angular blocky structure; very firm; few very fine and fine roots; many very fine and fine pores; common prominent clay films on faces of peds; 15 percent subangular chert gravel; strongly acid; gradual wavy boundary.

**3Bt5**—59 to 70 inches; 50 percent strong brown (7.5YR 5/8) and 50 percent red (2.5YR 4/6) gravelly clay; moderate fine angular blocky structure; firm; few very fine and fine roots; common very fine and fine pores; common prominent clay films on faces of peds; 20 percent subangular chert gravel; strongly acid; gradual wavy boundary.

**3Bt6**—70 to 80 inches; 75 percent red (2.5YR 4/6) and 25 percent yellowish red (5YR 5/8) gravelly clay; moderate fine angular blocky structure; very firm; few very fine and fine roots; common very fine and fine pores; common prominent clay films on faces of peds; 5 percent subangular chert cobbles and 15 percent subangular chert gravel; strongly acid.

### Range in Characteristics

*Depth to bedrock:* More than 80 inches

*Solum thickness:* More than 60 inches

#### *A horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 1 to 4

Fine-earth texture—silt loam

Content of rock fragments—35 to 60 percent

Reaction—very strongly acid to moderately acid

#### *E horizon:*

Color—hue of 10YR, value of 4 to 7, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—20 to 50 percent

Reaction—very strongly acid to moderately acid

#### *BE and Bt horizons:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 6, and chroma of 3, 4, 6, or 8

Fine-earth texture—loam or silt loam

Content of rock fragments—35 to 75 percent

Reaction—very strongly acid or strongly acid

#### *2Bt horizon:*

Color—hue of 10R, 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 7, and chroma of 1, 2, 3, 4, 6, or 8

Fine-earth texture—clay loam, silty clay loam, silty clay, or clay

Content of rock fragments—30 to 60 percent

Reaction—strongly acid or moderately acid

#### *3Bt horizon:*

Color—hue of 10R, 2.5YR, 5YR, 7.5YR, or 10YR, value of 3 to 7, and chroma of 1, 2, 3, 4, 6, or 8

Fine-earth texture—clay

Content of rock fragments—15 to 60 percent

Reaction—strongly acid or moderately acid

### **Scholten Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderate above the fragipan, very slow in the fragipan, and moderately rapid below the fragipan

*Landform:* Upland

*Position on the landform:* Summit, shoulder, or backslope

*Parent material:* Colluvium or hillslope sediments and the underlying residuum weathered from cherty dolostone

*Slope range:* Strongly sloping to very steep (8 to 45 percent)

*Elevation:* 880 feet

*Taxonomic class:* Loamy-skeletal, siliceous, active, mesic Typic Fragiudults

### Typical Pedon

Scholten silt loam, in an area of Clarksville-Scholten complex, 15 to 45 percent slopes, very stony; in a forest; 50 feet east and 700 feet south of the northwest corner of sec. 32, T. 29 N., R. 1 W.; in Shannon County; USGS Exchange topographic quadrangle; UTM coordinates 4,111,283 meters N. and 669,725 meters E., Zone 15, NAD27.

Oi—0 to 2 inches; partially decomposed leaves, roots, and twigs; abrupt wavy boundary.

A—2 to 9 inches; brown (10YR 5/3) very gravelly silt loam; moderate fine subangular blocky structure; friable; common fine, medium, and coarse roots; many fine interstitial and common fine tubular pores; many distinct brown (10YR 4/3) organic coats throughout; 30 percent subangular chert gravel and 5 percent subangular chert cobbles; very strongly acid; clear smooth boundary.

E—9 to 16 inches; 50 percent yellowish brown (10YR 5/4) and 50 percent brown (10YR 5/3) gravelly silt loam; moderate fine subangular blocky structure; friable; common fine and medium and few coarse roots; common fine tubular and common fine interstitial pores; few faint black (N 2/0) manganese or iron-manganese stains throughout; 20 percent subangular chert gravel, 1 percent subangular chert cobbles, and 2 percent subangular chert stones; very strongly acid; clear smooth boundary.

Bt—16 to 22 inches; 50 percent yellowish red (5YR 4/6) and 50 percent strong brown (7.5YR 4/6) very gravelly clay loam; moderate medium subangular blocky structure parting to moderate fine angular blocky; firm; few very fine and fine and few coarse roots; many very fine and fine tubular pores; many distinct red (2.5YR 4/6) and brown (7.5YR 4/4) clay films on vertical faces of peds; many distinct pale brown (10YR 6/3) silt coats on vertical and horizontal faces of peds; 45 percent subangular chert gravel, 5 percent subangular chert cobbles, and 2 percent subangular chert stones; very strongly acid; clear smooth boundary.

2Btx1—22 to 29 inches; 50 percent strong brown (7.5YR 4/6) and 50 percent yellowish brown (10YR 5/4) extremely gravelly clay loam; moderate fine subangular blocky structure;

extremely firm; 60 percent brittle; few fine roots; many very fine and fine tubular and common fine vesicular pores; common distinct yellowish red (5YR 4/6) and brown (7.5YR 4/4) clay films on rock fragments; many distinct pale brown (10YR 6/3) silt coats on rock fragments; 60 percent subangular chert gravel and 5 percent subangular chert cobbles; very strongly acid; clear smooth boundary.

2Btx2—29 to 36 inches; 33 percent strong brown (7.5YR 5/6), 33 percent yellowish brown (10YR 5/4), and 33 percent brownish yellow (10YR 6/6) extremely gravelly loam; moderate fine subangular blocky structure; extremely firm; 60 percent brittle; few fine roots; many very fine and fine tubular and common fine vesicular pores; common distinct red (2.5YR 4/6) and strong brown (7.5YR 4/6) clay films on faces of peds; many distinct light brown (7.5YR 6/3) silt coats on vertical and horizontal faces of peds; few prominent black (N 2/0) manganese or iron-manganese stains on faces of peds; 50 percent subangular chert gravel and 10 percent subangular chert cobbles; very strongly acid; clear smooth boundary.

2Btx31—36 to 41 inches; 50 percent yellowish red (5YR 4/6) and 50 percent red (2.5YR 4/6) extremely gravelly loam; moderate fine subangular blocky structure; extremely firm; 40 percent brittle; few very fine and fine roots; common fine tubular pores; horizontal interbedded rotten chert and clay; common distinct dark red (2.5YR 3/6) clay films on rock fragments; many distinct pale brown (10YR 6/3) silt coats on vertical and horizontal faces of peds; 55 percent subangular chert gravel and 15 percent subangular chert cobbles; very strongly acid; (horizon subdivided for sampling).

2Btx32—41 to 46 inches; 50 percent yellowish red (5YR 4/6) and 50 percent red (2.5YR 4/6) extremely gravelly clay loam; moderate fine subangular blocky structure; extremely firm; 30 percent brittle; few very fine and fine roots; common fine tubular pores; common distinct dark red (2.5YR 3/6) moist clay films on rock fragments; many distinct pale brown (10YR 6/3) moist silt coats on vertical and horizontal faces of peds; 55 percent subangular chert gravel and 15 percent subangular chert cobbles; very strongly acid; gradual smooth boundary.

3Bt—46 to 60 inches; 50 percent red (2.5YR 4/6) and 50 percent yellowish red (5YR 5/6) extremely gravelly clay; weak medium prismatic structure parting to weak fine platy structure parting to

weak fine subangular blocky; very firm; few very fine and fine roots; common very fine and fine tubular pores; few distinct dark red (2.5YR 3/6) moist clay films on faces of peds; common distinct brown (7.5YR 5/4) moist clay films on rock fragments; few distinct light reddish brown (5YR 6/3) moist silt coats on vertical and horizontal faces of peds; common fine rounded black (N 2/0) iron-manganese concretions throughout; 40 percent subangular chert gravel and 20 percent subangular chert cobbles; very strongly acid.

#### Range in Characteristics

*Depth to 2Btx horizon:* 14 to 36 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 to 5, chroma of 2 or 3  
 Fine-earth texture—silt loam  
 Content of rock fragments—15 to 60 percent  
 Reaction—extremely acid to moderately acid

*E horizon:*

Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 4  
 Fine-earth texture—silt loam  
 Content of rock fragments—20 to 50 percent  
 Reaction—extremely acid to moderately acid

*Bt horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4 or 6  
 Redoximorphic features—iron segregations in shades of gray or brown just above the fragipan in some pedons  
 Fine-earth texture—loam, silt loam, clay loam, or silty clay loam  
 Content of rock fragments—30 to 60 percent  
 Reaction—very strongly acid or strongly acid

*2Btx horizon:*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 3, 4, or 6  
 Redoximorphic features—iron segregations in shades of red, brown, or gray  
 Fine-earth texture—silt loam, loam, clay loam, or silty clay loam  
 Content of rock fragments—30 to 75 percent  
 Reaction—very strongly acid or strongly acid

*3Bt horizon:*

Color—hue of 2.5YR, 5YR, or 7.5YR, value of 3 to 5, and chroma of 4, 6, or 8  
 Redoximorphic features—iron segregations in shades of brown, yellow, or gray

Fine-earth texture—clay loam, silty clay loam, silty clay, or clay

Content of rock fragments—15 to 60 percent

Reaction—very strongly acid or strongly acid

#### Secesh Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Stream valley

*Position on the landform:* Low stream terrace and footslope

*Parent material:* Loamy and gravelly alluvium

*Slope range:* Nearly level and very gently sloping (0 to 3 percent)

*Elevation:* 850 feet

*Taxonomic class:* Fine-loamy, siliceous, active, mesic Ultic Hapludalfs

#### Typical Pedon

Secesh silt loam, 0 to 3 percent slopes, rarely flooded; in a pasture; 850 feet north and 500 feet east of the southwest corner of sec. 19, T. 34 N., R. 8 E.; USGS Womack topographic quadrangle; UTM coordinates 4,168,156 meters N. and 747,146 meters E., Zone 15, NAD27.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) silt loam, yellowish brown (10YR 5/4) dry; moderate very fine and fine granular structure; very friable; many very fine and fine roots; 4 percent chert gravel; slightly acid; abrupt wavy boundary.

Bt1—6 to 13 inches; brown (7.5YR 4/4) silt loam; moderate coarse prismatic structure parting to moderate very fine subangular blocky; friable; common very fine and fine roots; common faint clay films on faces of peds; 6 percent chert gravel; neutral; clear wavy boundary.

Bt2—13 to 21 inches; strong brown (7.5YR 4/6) silt loam; weak coarse prismatic structure parting to moderate very fine subangular blocky; friable; common very fine and fine roots; few faint clay films on faces of peds; 6 percent chert gravel; moderately acid; abrupt wavy boundary.

2C1—21 to 27 inches; strong brown (7.5YR 4/6) very gravelly coarse sandy loam; single grain; very friable; few very fine and fine roots; few distinct clay films and organic coats on rock fragments; 58 percent chert gravel; moderately acid; clear wavy boundary.

2C2—27 to 37 inches; brown (7.5YR 4/4) gravelly coarse sandy loam; single grain; very friable; few

very fine roots; very few faint clay films and organic coats on rock fragments; 31 percent chert gravel; moderately acid; gradual smooth boundary.

2C3—37 to 60 inches; dark yellowish brown (10YR 4/4) extremely gravelly coarse sandy loam; single grain; very friable; few clay films on rock fragments; 55 percent chert gravel and 20 percent chert cobbles; moderately acid.

### Range in Characteristics

*Solum thickness:* 21 to 60 inches or more

#### *A or Ap horizon:*

Color—hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 2 to 4  
 Fine-earth texture—silt loam  
 Content of rock fragments—0 to 15 percent  
 Reaction—strongly acid or moderately acid, unless limed

#### *AB horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 2 to 4  
 Fine-earth texture—loam or silt loam  
 Content of rock fragments—0 to 15 percent  
 Reaction—strongly acid or moderately acid, unless limed

#### *Bt horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 or 5, and chroma of 4, 6, or 8  
 Fine-earth texture—loam or silt loam  
 Content of rock fragments—0 to 25 percent  
 Reaction—very strongly acid to moderately acid, unless limed

#### *2Bt horizon (where present):*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 or 5, and chroma of 4, 6, or 8  
 Fine-earth texture—sandy loam, loam, or sandy clay loam  
 Content of rock fragments—5 to 50 percent  
 Reaction—very strongly acid to moderately acid

#### *2C horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 or 5, and chroma of 4, 6, or 8  
 Fine-earth texture—coarse sandy loam, sandy loam, or sandy clay loam  
 Content of rock fragments—35 to 75 percent  
 Reaction—very strongly acid to moderately acid

### **Skrainka Series**

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Basin-floor remnant

*Position on the landform:* Footslope

*Parent material:* Alluvium or colluvium and residuum weathered primarily from basic igneous rocks

*Slope range:* Moderately sloping and strongly sloping (3 to 15 percent)

*Elevation:* 830 feet

*Taxonomic class:* Fine, mixed, active, mesic Oxyaquic Hapludalfs

### Typical Pedon

Skrainka silt loam, 3 to 8 percent slopes, eroded; in a pasture; 3,500 feet south and 4,050 feet east of the northwest corner of sec. 36, T. 34 N., R. 5 E.; USGS Rhodes Mountain topographic quadrangle; UTM coordinates 4,164,744 meters N. and 727,119 meters E., Zone 15, NAD27.

Ap—0 to 6 inches; dark brown (10YR 3/3) silt loam, dark yellowish brown (10YR 3/4) rubbed and brown (10YR 5/3) dry; moderate very fine and fine granular structure; friable; many very fine and fine roots; few fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation along root channels; moderately acid; abrupt smooth boundary.

Bt1—6 to 12 inches; brown (10YR 4/3) silty clay loam; moderate very fine subangular blocky structure; friable; common very fine and fine roots; very few distinct clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation along root channels; strongly acid; clear smooth boundary.

Bt2—12 to 21 inches; brown (10YR 4/3) silty clay loam; weak medium prismatic structure parting to moderate very fine and fine subangular blocky; firm; common very fine roots; common faint clay films and few distinct clay flows on faces of peds; few fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation along root channels; moderately acid; clear smooth boundary.

Bt3—21 to 33 inches; brown (10YR 4/3) clay; moderate medium prismatic structure parting to moderate very fine and fine subangular blocky; firm; few very fine roots; many distinct clay films on faces of peds; common medium and coarse black stains (Mn/Fe); common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation; neutral; gradual wavy boundary.

2BC1—33 to 45 inches; dark yellowish brown (10YR 4/6) loam; moderate medium platy structure parting to weak fine subangular blocky; friable;

very few very fine roots; few prominent clay flows on faces of peds; few prominent black masses of iron and manganese accumulation; few black specks (magnetite); neutral; gradual wavy boundary.

2BC2—45 to 57 inches; dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/8) fine sandy loam; weak medium platy structure; friable; very few faint clay films on faces of peds; common black specks (magnetite); moderately alkaline; gradual smooth boundary.

2C1—57 to 68 inches; yellowish brown (10YR 5/8) and brownish yellow (10YR 6/8) sandy loam; massive; friable; many black specks (magnetite); few white lithochromic mottles; moderately alkaline; gradual smooth boundary.

2C2—68 to 80 inches; yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8) sandy loam; massive; friable; many black specks (magnetite); few white lithochromic mottles; moderately alkaline.

#### Range in Characteristics

*Depth to 2BC horizon:* 24 to 60 inches or more

*A or Ap horizon:*

Color—hue of 10YR, value of 2 to 3, and chroma of 2 or 3

Fine-earth texture—silt loam or loam

Content of rock fragments—0 to 15 percent

Reaction—strongly acid to neutral

*Bt horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 3 to 6, and chroma of 3, 4, 6, or 8

Fine-earth texture—clay loam, silty clay loam, silty clay, or clay

Content of rock fragments—0 to 10 percent

Reaction—strongly acid to slightly alkaline

*2BC horizon (upper part):*

Color—hue of 2.5YR, 5YR, 7.5YR, or 10YR, value of 4 to 8, and chroma of 2, 3, 4, 6, or 8

Fine-earth texture—loam or clay loam

Content of rock fragments—0 to 7 percent

Reaction—strongly acid to moderately alkaline

*2BC (lower part) and 2C horizons:*

Color—hue of 7.5YR or 10YR, value of 5 to 8, and chroma of 3, 4, 6, or 8

Fine-earth texture—coarse sandy loam, sandy loam, or fine sandy loam

Content of rock fragments—0 to 7 percent

Reaction—neutral to moderately alkaline

### Syenite Series

*Depth class:* Moderately deep (20 to 40 inches)

*Drainage class:* Well drained

*Permeability class:* Moderately slow

*Landform:* Mountain

*Position on the landform:* Shoulder and backslope

*Parent material:* Loess and the underlying loamy residuum from granite

*Slope range:* Strongly sloping to steep (8 to 25 percent)

*Elevation:* 1,005 feet

*Taxonomic class:* Fine-loamy, mixed, active, mesic Typic Hapludults

#### Typical Pedon

Syenite silt loam, in an area of Hassler-Syenite complex, 8 to 25 percent slopes, bouldery; in a forest; 550 feet south and 1,700 feet east of the northwest corner of sec. 32, T. 34 N., R. 6 E.; USGS Rhodes Mountain topographic quadrangle; UTM coordinates 4,165,709 meters N. and 729,669 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt wavy boundary.

A—1 to 4 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; very friable; many very fine, fine, and medium roots; 7 percent granite gravel, 2 percent granite cobbles, 1 percent granite stones; very strongly acid; abrupt wavy boundary.

E—4 to 9 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; weak thin platy structure parting to weak fine granular; friable; many very fine and few medium and coarse roots; 8 percent granite gravel and 2 percent granite cobbles; very strongly acid; clear wavy boundary.

Bt1—9 to 14 inches; strong brown (7.5YR 4/6) gravelly loam; moderate very fine subangular blocky structure; friable; common very fine, fine, and medium and few coarse roots; few faint clay films on faces of peds; few distinct brown (10YR 4/3) silt coats; 25 percent granite gravel, 4 percent granite cobbles, and 1 percent granite stones; very strongly acid; clear wavy boundary.

Bt2—14 to 19 inches; dark yellowish brown (10YR 4/6) gravelly loam; moderate very fine subangular blocky structure; friable; common very fine and fine and few medium roots; few faint clay films; 20 percent granite gravel and 5 percent granite boulders; very strongly acid; abrupt wavy boundary.

2Bt3—19 to 29 inches; yellowish brown (10YR 5/6) bouldery loam; weak fine subangular blocky structure; firm; common very fine and fine roots; few distinct clay films; common light gray (10YR 7/2) and few dark grayish brown (10YR 4/2) silt coats; 5 percent granite gravel and 10 percent granite boulders; very strongly acid; abrupt wavy boundary.

2R—29 inches; granite bedrock.

### Range in Characteristics

*Depth to bedrock:* 20 to 40 inches

#### *A horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3  
 Fine-earth texture—silt loam  
 Content of rock fragments—0 to 10 percent  
 Reaction—very strongly acid to moderately acid

#### *E horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4  
 Fine-earth texture—silt loam or loam  
 Content of rock fragments—0 to 10 percent  
 Reaction—very strongly acid to moderately acid

#### *Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, or 6  
 Fine-earth texture—loam, silt loam, clay loam, or silty clay loam  
 Content of rock fragments—0 to 30 percent  
 Reaction—very strongly acid or strongly acid

#### *2Bt horizon and 2BC horizon (where present):*

Color—hue of 7.5YR or 10YR, value of 4 to 6, chroma of 3, 4, or 6  
 Fine-earth texture—loam  
 Content of rock fragments—5 to 30 percent  
 Reaction—very strongly acid or strongly acid

## Taumsauk Series

*Depth class:* Shallow and very shallow (4 to 20 inches)

*Drainage class:* Somewhat excessively drained

*Permeability class:* Moderate

*Landform:* Mountain

*Position on the landform:* Backslope

*Parent material:* Colluvium or residuum weathered from rhyolite or felsite

*Slope range:* Moderately steep and steep (15 to 35 percent)

*Elevation:* 1,080 feet

*Taxonomic class:* Loamy-skeletal, mixed, active, mesic Lithic Hapludults

### Typical Pedon

Taumsauk cobbly silt loam, in an area of Taumsauk-Irondale-Rock outcrop complex, 15 to 45 percent slopes, extremely stony (fig. 16); in a forest; 2,000 feet N. and 1,100 feet west of the southeast corner of sec. 2, T. 32 N., R. 6 E.; USGS Cherokee Pass topographic quadrangle; UTM coordinates 4,151,844 meters N. and 733,874 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt wavy boundary.

A—1 to 5 inches; dark brown (10YR 3/3) cobbly silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common fine and medium roots; 10 percent rhyolite cobbles and 10 percent rhyolite gravel; very strongly acid; clear smooth boundary.

Bt1—5 to 9 inches; dark yellowish brown (10YR 4/4) very cobbly silt loam; moderate fine and medium subangular blocky structure; friable; many fine and medium and few coarse roots; common continuous clay films on faces of peds; 15 percent rhyolite cobbles and 20 percent rhyolite gravel; very strongly acid; clear smooth boundary.

Bt2—9 to 14 inches; yellowish brown (10YR 5/6) very cobbly silt loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few medium yellowish red (5YR 4/6) and brown (10YR 5/3) masses of iron accumulation and few fine masses of iron-manganese accumulation; 25 percent rhyolite cobbles and 30 percent rhyolite gravel; very strongly acid; clear smooth boundary.

Bt3—14 to 16 inches; yellowish brown (10YR 5/4) extremely cobbly silty clay loam; moderate fine and medium subangular blocky structure; friable; few fine roots; common fine strong brown (7.5YR 5/6 and 5/8) and few fine pale brown (10YR 6/3) masses of iron accumulation and few fine masses of iron-manganese accumulation; 40 percent rhyolite cobbles and 20 percent rhyolite gravel; very strongly acid; abrupt wavy boundary.

R—16 inches; rhyolite.

### Range in Characteristics

*Depth to bedrock:* 4 to 20 inches

*Solum thickness:* 4 to 20 inches

#### *A horizon:*

Color—hue of 10YR, value of 2 to 4, and chroma of 2 to 4

Fine-earth texture—silt loam



Figure 16.—Granite shut-in on the Castor River in the Amidon State Forest in an area of Taumsauk-Irondale-Rock outcrop complex, 15 to 45 percent slopes, extremely stony.

Content of rock fragments—15 to 35 percent  
 Reaction—very strongly acid to moderately acid

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5,  
 and chroma of 4 or 6  
 Fine-earth texture—silt loam, clay loam, or silty  
 clay loam  
 Content of rock fragments—35 to 75 percent  
 Reaction—extremely acid to strongly acid

***Tilk Series***

*Depth class:* Very deep (more than 60 inches)  
*Drainage class:* Well drained  
*Permeability class:* Moderately rapid  
*Landform:* Stream valley  
*Position on the landform:* Low stream terrace  
*Parent material:* Loamy and sandy alluvial sediments  
 with a high content of rock fragments

*Slope range:* Nearly level and very gently sloping (0 to 3 percent)

*Elevation:* 590 feet

*Taxonomic class:* Loamy-skeletal, siliceous, active, mesic Ultic Hapludalfs

### Typical Pedon

Tilk very gravelly sandy loam, 0 to 3 percent slopes, rarely flooded; in a forest; 650 feet south and 2,400 feet east of the northwest corner of sec. 35, T. 33 N., R. 5 E.; USGS Rhodes Mountain topographic quadrangle; UTM coordinates 4,154,115 meters N. and 724,190 meters E., Zone 15, NAD27.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) very gravelly sandy loam, pale brown (10YR 6/3) dry; moderate fine granular structure; very friable; many very fine and fine and few medium roots; 10 percent chert cobbles and 50 percent chert gravel; moderately acid; abrupt smooth boundary.

A2—2 to 8 inches; dark brown (10YR 3/3) very gravelly loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; friable; many very fine, common fine and medium, and few coarse roots; 10 percent chert cobbles and 39 percent chert gravel; strongly acid; clear smooth boundary.

E—8 to 16 inches; brown (10YR 4/3) extremely gravelly loam; weak fine subangular blocky structure parting to moderate fine granular; friable; common very fine, fine, medium, and coarse roots; 2 percent chert stones, 15 percent chert cobbles, and 45 percent chert gravel; very strongly acid; clear smooth boundary.

Bt1—16 to 24 inches; brown (7.5YR 4/4) very cobbly loam; moderate very fine subangular blocky structure; friable; common very fine and fine and few medium and coarse roots; common distinct dark yellowish brown (10YR 4/6) clay films; 2 percent chert stones, 15 percent chert cobbles, and 23 percent chert gravel; very strongly acid; clear smooth boundary.

Bt2—24 to 36 inches; strong brown (7.5YR 4/6) extremely gravelly loam; moderate fine subangular blocky structure; friable; few very fine, fine, medium, and coarse roots; few distinct dark yellowish brown (10YR 4/6) clay films; 5 percent chert stones, 20 percent chert cobbles and 48 percent chert gravel; very strongly acid; gradual wavy boundary.

2BC—36 to 47 inches; dark yellowish brown (10YR 4/4) extremely gravelly coarse sandy loam; weak fine subangular blocky structure; friable; few fine and medium roots; many prominent dark brown

(7.5YR 3/4) clay films on rock fragments; 15 percent chert stones, 5 percent chert cobbles and 50 percent chert gravel; strongly acid; gradual wavy boundary.

2C—47 to 70 inches; dark yellowish brown (10YR 4/4) extremely gravelly coarse sandy loam; massive; friable; few very fine roots; 10 percent chert stones, 15 percent chert cobbles, and 45 percent chert gravel; strongly acid.

### Range in Characteristics

*Solum thickness:* 36 to 70 inches

*A horizon:*

Color—hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 2 to 4

Fine-earth texture—sandy loam

Content of rock fragments—35 to 60 percent

Reaction—strongly acid to slightly acid

*E horizon:*

Color—hue of 7.5YR or 10YR, value of 4, and chroma of 3 or 4

Fine-earth texture—loam or coarse sandy loam

Content of rock fragments—35 to 75 percent

Reaction—very strongly acid to moderately acid

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3, 4, or 6

Fine-earth texture—sandy loam or loam

Content of rock fragments—35 to 75 percent

Reaction—very strongly acid to moderately acid

*2BC and 2C horizons:*

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 4 or 6

Fine-earth texture—coarse sandy loam, sandy loam, or loamy coarse sand

Content of rock fragments—35 to 75 percent

Reaction—strongly acid or moderately acid

### Trackler Series

*Depth class:* Deep (40 to 60 inches)

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Mountain

*Position on the landform:* Summit or shoulder

*Parent material:* Loamy colluvium and residuum from fine grained igneous rocks, predominantly rhyolite

*Slope range:* Moderately sloping and strongly sloping (3 to 15 percent)

*Elevation:* 770 feet

*Taxonomic class:* Fine-loamy, mixed, active, mesic Aquic Hapludalts

### Typical Pedon

Trackler silt loam, 3 to 8 percent slopes; in a forest; 950 feet north and 3,000 feet east of the southwest corner of sec. 19, T. 33 N., R. 6 E.; USGS Rhodes Mountain topographic quadrangle; UTM coordinates 4,156,303 meters N. and 727,522 meters E., Zone 15, NAD27.

Oi—0 to 1 inch; partially decomposed leaves, twigs, and roots; abrupt smooth boundary.

A—1 to 2 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; very friable; many very fine and fine and few medium roots; 3 percent subrounded rhyolite gravel and 1 percent rhyolite cobbles; strongly acid; abrupt smooth boundary.

E—2 to 8 inches; yellowish brown (10YR 5/4) silt loam, very pale brown (10YR 7/3) dry; moderate fine subangular blocky structure parting to moderate very fine granular; friable; many very fine and fine and few medium and coarse roots; 2 percent subrounded rhyolite gravel and 1 percent rhyolite cobbles; very strongly acid; clear smooth boundary.

Bt1—8 to 14 inches; yellowish brown (10YR 5/6) silt loam; moderate very fine and fine subangular blocky structure; friable; many very fine and fine and few medium and coarse roots; common faint clay films on faces of peds; 2 percent subrounded rhyolite gravel and 3 percent rhyolite cobbles; very strongly acid; clear smooth boundary.

2Bt2—14 to 23 inches; strong brown (7.5YR 5/6) cobbly silt loam; moderate fine subangular blocky structure; friable; many very fine, common fine, and few medium roots; many distinct clay films on faces of peds; few faint brown (7.5YR 5/4) clay depletions on faces of peds and along larger root channels; 10 percent subrounded rhyolite gravel and 10 percent rhyolite cobbles; strongly acid; clear smooth boundary.

3Bt3—23 to 31 inches; strong brown (7.5YR 4/6) extremely stony loam; weak coarse prismatic structure; firm; common very fine and few fine roots; common distinct clay films on faces of peds; few prominent pinkish gray (7.5YR 6/2) clay flows on faces of peds and rock fragments; common prominent light brown (7.5YR 6/4) clay depletions; 7 percent rhyolite gravel, 15 percent rhyolite cobbles (some decomposed), and 40 percent rhyolite stones; very strongly acid; clear wavy boundary.

3CB—31 to 45 inches; strong brown (7.5YR 4/6) extremely stony loam; massive; firm; few fine roots concentrated in gray seams; few prominent brown

(7.5YR 5/2) clay films on rock fragments; few prominent light gray (10YR 7/2) iron depletions in pockets and seams; few coarse distinct strong brown (7.5YR 5/8) masses of iron accumulation; 2 percent rhyolite gravel, 10 percent rhyolite cobbles, and 60 percent rhyolite stones; very strongly acid; abrupt wavy boundary.

3R—45 inches; rhyolite.

### Range in Characteristics

*Depth to 2Bt horizon:* 13 to 27 inches

*Depth to bedrock:* 40 to 60 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 or 4, and chroma 2 or 3

Fine-earth texture—silt loam

Content of rock fragments—0 to 6 percent

Reaction—very strongly acid to moderately acid

*E horizon:*

Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4

Fine-earth texture—silt loam

Content of rock fragments—0 to 6 percent

Reaction—very strongly acid to moderately acid

*Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Fine-earth texture—silt loam or silty clay loam

Content of rock fragments—0 to 21 percent

Reaction—very strongly acid or strongly acid

*2Bt horizon:*

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2, 3, 4, or 6

Fine-earth texture—silt loam, clay loam, silty clay loam, or clay

Content of rock fragments—5 to 35 percent

Reaction—very strongly acid or strongly acid

*3Bt and 3CB horizons:*

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Fine-earth texture—coarse sandy loam or loam

Content of rock fragments—35 to 75 percent

Reaction—very strongly acid or strongly acid

### Waben Series

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Well drained

*Permeability class:* Moderately rapid

*Landform:* Stream valley

*Position on the landform:* Narrow terrace, alluvial-colluvial fan, and toeslope

*Parent material:* Very cherty alluvium and colluvium

*Slope range:* Moderately sloping and strongly sloping (3 to 15 percent)

*Elevation:* 570 feet

*Taxonomic class:* Loamy-skeletal, siliceous, semiactive, mesic Typic Paleudults

### Typical Pedon

Waben gravelly silt loam, in an area of Aslinger-Waben complex, 3 to 15 percent slopes; in a pasture; 1,675 feet east and 1,100 feet south of the northwest corner of sec. 9, T. 31 N., R. 5 E.; USGS Des Arc Northeast topographic quadrangle; UTM coordinates 4,140,516 meters N. and 720,889 meters E., Zone 15, NAD27.

Ap—0 to 6 inches; dark brown (10YR 3/3) gravelly silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; very friable; many very fine and fine roots; 11 percent subrounded gravel and 5 percent subrounded cobbles; slightly acid; abrupt wavy boundary.

Bt1—6 to 15 inches; dark yellowish brown (10YR 4/4) very gravelly silt loam; moderate very fine and fine subangular blocky structure; friable; common very fine and fine roots; 41 percent subrounded gravel and 15 percent subrounded cobbles; slightly acid; clear wavy boundary.

2Bt2—15 to 28 inches; yellowish brown (10YR 5/6) extremely gravelly silt loam; moderate very fine subangular blocky structure; friable; few very fine and fine roots; very few black (10YR 2/1) manganese or iron-manganese stains on rock fragments; few faint discontinuous clay films on faces of peds; 55 percent subrounded gravel and 15 percent subrounded cobbles; slightly acid; clear wavy boundary.

2Bt3—28 to 34 inches; strong brown (7.5YR 5/6) very gravelly loam; moderate very fine and fine subangular blocky structure; firm; few black (10YR 2/1) manganese or iron-manganese stains on rock fragments; common faint discontinuous clay films on faces of peds; 45 percent subrounded gravel and 10 percent subrounded cobbles; strongly acid; clear wavy boundary.

2Bt4—34 to 43 inches; strong brown (7.5YR 4/6) very gravelly loam; moderate very fine and fine subangular blocky structure; firm; light yellowish brown (10YR 6/4) silt coats; very few black (10YR 2/1) manganese or iron-manganese stains on rock fragments; common distinct discontinuous clay films on faces of peds; few fine yellowish red (5YR 4/6) masses of iron accumulation; 38

percent subangular gravel and 7 percent subangular cobbles; strongly acid; gradual wavy boundary.

2Bt5—43 to 54 inches; strong brown (7.5YR 4/6) very gravelly loam; moderate very fine subangular blocky structure; firm; very few black (10YR 2/1) manganese or iron-manganese stains on rock fragments; many distinct discontinuous clay films on faces of peds; 31 percent subangular gravel and 5 percent subangular cobbles; strongly acid; gradual wavy boundary.

3Bt6—54 to 63 inches; strong brown (7.5YR 5/6) very gravelly clay loam; moderate very fine subangular blocky structure; firm; very few manganese or iron-manganese stains; many distinct discontinuous clay films on faces of peds; common fine and medium yellowish red (5YR 5/6) masses of iron accumulation; 42 percent subangular gravel and 5 percent subangular cobbles; strongly acid; gradual wavy boundary.

3Bt7—63 to 73 inches; strong brown (7.5YR 5/6) extremely gravelly clay loam; moderate very fine and fine subangular blocky structure; firm; few black (10YR 2/1) manganese or iron-manganese stains on rock fragments; common distinct discontinuous clay films on faces of peds; many fine and medium yellowish red (5YR 5/6) masses of iron accumulation; 55 percent subangular gravel and 10 percent subangular cobbles; strongly acid; clear wavy boundary.

3Bt8—73 to 84 inches; yellowish red (5YR 5/6) gravelly clay loam; moderate fine subangular blocky structure; firm; very few black (10YR 2/1) manganese or iron-manganese stains on rock fragments; common distinct discontinuous clay films on faces of peds; 32 percent angular gravel and 7 percent angular cobbles; strongly acid.

### Range in Characteristics

*Depth to bedrock:* More than 80 inches

*Solum thickness:* More than 80 inches

*A or Ap horizon:*

Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4

Fine-earth texture—silt loam

Content of rock fragments—15 to 35 percent

Reaction—strongly acid to slightly acid

*E or BE horizon (where present):*

Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4

Fine-earth texture—silt loam or loam

Content of rock fragments—25 to 80 percent

Reaction—very strongly acid to moderately acid

*Bt horizon:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 or 5, and chroma of 4 or 6

Redoximorphic features—iron concentrations in shades of brown

Fine-earth texture—loam or silt loam

Content of rock fragments—35 to 70 percent

Reaction—very strongly acid or strongly acid

*2Bt and 3Bt horizons:*

Color—hue of 5YR, 7.5YR, or 10YR, value of 4 or 5, and chroma of 4 or 6

Redoximorphic features—iron concentrations in shades of brown

Fine-earth texture—loam, silt loam, or clay loam

Content of rock fragments—35 to 70 percent

Reaction—very strongly acid or strongly acid

The Waben soils in Madison County are taxadjuncts to the Waben series because they have a lower base saturation and more clay in the lower part of the profile. This difference, however, does not affect the use and management of the soils.

Table 21.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Alred-----	Loamy-skeletal over clayey, siliceous, semiactive, mesic Typic Paleudalfs
Aslinger-----	Fine-loamy, mixed, active, mesic Fragiaquic Paleudults
Bearthicket-----	Fine-silty, mixed, active, mesic Ultic Hapludalfs
Bucklick-----	Fine, mixed, active, mesic Typic Hapludalfs
Caneyville-----	Fine, mixed, active, mesic Typic Hapludalfs
Captina-----	Fine-silty, siliceous, active, mesic Typic Fragiudults
Clarksville-----	Loamy-skeletal, siliceous, semiactive, mesic Typic Paleudults
Cornwall-----	Fine-silty, mixed, active, mesic Fragiaquic Paleudults
Courtois-----	Fine, mixed, active, mesic Typic Paleudalfs
Crider-----	Fine-silty, mixed, active, mesic Typic Paleudalfs
Deible-----	Fine, mixed, active, mesic Typic Albaqualfs
Delassus-----	Fine-loamy, mixed, active, mesic Typic Fragiudults
Firebaugh-----	Fine-loamy, mixed, active, mesic Fragiaquic Paleudults
Fourche-----	Fine-silty, mixed, active, mesic Glossaquic Paleudalfs
Frenchmill-----	Loamy-skeletal, mixed, active, mesic Typic Paleudults
Gasconade-----	Clayey-skeletal, mixed, superactive, mesic Lithic Hapludolls
Gepp-----	Very-fine, mixed, semiactive, mesic Typic Paleudalfs
Gladden-----	Coarse-loamy, siliceous, superactive, mesic Dystric Fluventic Eutrudepts
Hassler-----	Fine-loamy, mixed, active, mesic Oxyaquic Hapludults
Higdon-----	Fine-silty, mixed, active, mesic Aquic Hapludalfs
Irondale-----	Loamy-skeletal, mixed, active, mesic Typic Hapludults
Jamesfin-----	Fine-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts
Jonca-----	Fine-loamy, mixed, active, mesic Oxyaquic Fragiudalfs
Killarney-----	Loamy-skeletal, mixed, active, mesic Typic Fragiudults
Lily-----	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Loughboro-----	Fine, smectitic, mesic Aeric Glossaqualfs
Marquand-----	Fine-silty, mixed, active, mesic Aquic Hapludults
Poynor-----	Loamy-skeletal over clayey, siliceous, semiactive, mesic Typic Paleudults
*Raccoon-----	Fine-silty, mixed, active, mesic Typic Endoaqualfs
Ramsey-----	Loamy, siliceous, subactive, mesic Lithic Dystrudepts
Relfe-----	Sandy-skeletal, siliceous, mesic Mollic Udifluvents
Roselle-----	Fine-loamy, mixed, active, mesic Oxyaquic Hapludults
Rueter-----	Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs
Scholten-----	Loamy-skeletal, siliceous, active, mesic Typic Fragiudults
Secesh-----	Fine-loamy, siliceous, active, mesic Ultic Hapludalfs
Skrainka-----	Fine, mixed, active, mesic Oxyaquic Hapludalfs
Syenite-----	Fine-loamy, mixed, active, mesic Typic Hapludults
Taumsauk-----	Loamy-skeletal, mixed, active, mesic Lithic Hapludults
Tilk-----	Loamy-skeletal, siliceous, active, mesic Ultic Hapludalfs
Trackler-----	Fine-loamy, mixed, active, mesic Aquic Hapludults
Udipsamments-----	Udipsamments
Udorthents-----	Udorthents
*Waben-----	Loamy-skeletal, siliceous, semiactive, mesic Typic Paleudults

# Formation of the Soils

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This section relates the soils in the survey area to the major factors of soil formation.

Soil is the product of soil-forming processes acting on accumulated or deposited geologic material. The characteristics of the soil are determined by the type of parent material; the plant and animal life on and in the soil; the climate under which the soil-forming factors were active; topography, or lay of the land; and the length of time these forces have been active.

The parent material affects the kind of soil profile that is formed and, in extreme cases, determines it almost entirely. Plant and animal life are the active factors of soil formation. The climate determines the amount of water available for leaching and the amount of heat for physical and chemical changes. Together, climate and plant and animal life act on the parent material and slowly change it to a natural body that has genetically related horizons. Topography often modifies these other factors. Finally, time is required for changes in the parent material to result in the formation of a soil. Generally, a long time is required for the development of distinct soil horizons.

These factors of soil formation are all so closely interrelated in their effects on the soil that few generalizations can be made about the effect of any one factor unless conditions are specified for the other four. Soil formation is complex, and many processes of soil development are still unknown.

## Parent Material

Parent material is the unconsolidated mass from which soil is formed. It determines the limits of the chemical and mineral composition of the soil. The soils in Madison County formed in residuum, colluvium, loess, alluvium, or in a combination of these materials.

Residuum consists primarily of material weathered from one of the different kinds of rock that occur in the area—granite, rhyolite, diabase, sandstone, dolostone, or cherty dolostone. Shallow soils generally form solely in residuum. Following are the shallow soils in the survey area and the kind of rock in which they form: Taumsauk soils—rhyolite; Ramsey soils—sandstone; and Gasconade soils—dolostone.

Deeper soils generally have some loess or colluvium deposits in the upper part of the profile, but have a layer of residuum at some depth within the soil profile.

Colluvium, or hillslope sediment, is the debris which has accumulated on slopes from the weathering of rock. Aslinger, Cornwall, and Waben soils formed in thick colluvial deposits. The upper part of most deep and very deep soils on hillsides consists of colluvium. Frenchmill and Killarney soils formed in colluvium from rhyolite and granite.

Loess is silty material deposited by the wind. Older, stable parts of the landscape have thin deposits of loess, or have had them in the past. Commonly, the thickness is 18 to 32 inches. The upper part of the Captina, Crider, and Deible soils is loess. On other, more sloping and less stable parts of the landscape, loess has been eroded from or mixed with the surface layer.

Alluvium is material transported by water and deposited in the nearly level or gently sloping flood plains along rivers and streams. The major streams in Madison County are the St. Francis River and the Castor River. The alluvial material was washed from the watersheds of these rivers and streams and their tributaries. It ranges from silt to sand and gravel. Relfe soils have a high content of gravel and sand. Jamesfin soils are mostly silt with some clay. Gladden soils are loamy. Stream terraces are older flood plains that are now higher than the immediate flood plain because of downcutting of the stream channels to a lower elevation. Bearthicket and Secesh soils formed in old alluvium.

Most deep soils in Madison County formed in a combination of loess, colluvium, and residuum. For example, in the Captina soil, the parent materials are loess (0 to 25 inches), colluvium (25 to 31 inches), and residuum (31 to 78 inches). On the steep slopes, loess is mixed with the gravelly colluvium to a depth of about 18 inches. Parent materials in the Clarksville soil are colluvium that is mixed with loess (0 to 21 inches), a second layer of colluvium (25 to 43 inches), and residuum (43 to 66 inches). The colluvium and residuum formed from cherty dolostone. Alred and Rueter soils also formed in colluvium and residuum from cherty dolostone.

## Living Organisms

Plants and animals living on or in the soil are active in the soil-forming process. Plants furnish organic matter to the soil and bring up plant nutrients from underlying layers to the surface layer. As plants die and decay, they contribute organic matter to the soil. Bacteria and fungi decompose the plant remains and help to incorporate the organic matter into the soil. Burrowing animals and insects loosen and mix various soil horizons.

Trees and other plants in the forest community have significantly affected soil formation (Pritchett, 1979). Mature trees require a large root system for support and a supply of water and nutrients. As the roots decay, soil material from the upper horizons fills the old root channels. The result is pockets of dark material in many forested soils, such as Clarksville soils. The soil in these old root channels has more humus and is more porous than the surrounding soil. Old root channels are most prevalent in the upper part of the subsoil, generally within a depth of about 1.5 feet.

When trees are blown down during periods of high winds, a large amount of soil is unearthed with the roots. These tree-tip mounds are common in the survey area. They alter the topography on a small scale. Although only a small area is affected by one tree, over a period of many years the surface layer is mixed with the underlying soil. The cumulation of this mixing can greatly affect soil formation.

## Climate

Climate has been and still is an important factor of soil formation. Geologic erosion; plant and animal life; and, in more recent times, accelerated erosion all have varied with the climate.

The glacial periods that so greatly affected the soil-forming processes were a result of climatic changes. Thousands of years of cold temperatures resulted in glaciers that moved into the area. Several soil-forming periods have occurred since the last ice sheet left northern Missouri. Geologic evidence indicates that the climate was colder and wetter than the present climate during some soil-forming periods and was warmer during others. The warmer weather and high winds resulted in severe geologic erosion, and much of the area was covered by loess.

High temperatures and adequate rainfall encourage rapid chemical and physical changes. This type of climate is conducive to the breakdown of minerals and the relocation of clay within the soil. The clay is moved downward into the soil profile, and this

downward movement results in the formation of the subsoil. Nearly all of the upland soils in the county show evidence of this illuviation.

## Topography

Topography, or relief, affects soil formation through its influence on drainage, runoff, the rate of water infiltration, and geologic erosion. Topography is characterized by the length, shape, aspect, and degree of slope. It is important in determining the pattern and distribution of soils.

The amount of water entering the soil depends on steepness of slope, permeability, and the intensity of rainfall. Because runoff is rapid in steep areas, very little water passes through the soil and soil formation is slow. Geologic erosion almost keeps pace with the soil-forming processes. In gently sloping areas, runoff is slow, erosion is minimal, and most of the water passes through the soil. Leaching, the translocation of clay, and other soil-forming processes are intensified in these areas. Soils in these areas generally show maximum profile development.

Soils on steep, south-facing slopes receive more direct sunlight and are drier than similar soils on north-facing slopes. Drier conditions influence soil formation by affecting the kind of vegetation, the susceptibility to erosion, and the cycles of freezing and thawing.

## Time

The youngest soils in Madison County formed in alluvium. Relfe soils, for example, show little profile development. Alluvial material is added to the surface nearly every year. Bearthicket, Deible, and Secesh soils are older alluvial soils. They are on stream terraces and show moderate profile development.

The oldest soils in the survey area formed in areas at the highest elevation in the county. Captina, Firebaugh, and Fourche soils are examples. They have well developed, distinct horizons. The carbonates originally present in their parent material have been leached to a great depth, leaving the soil quite acid throughout. Clay has been concentrated in distinct subsoil horizons through translocation by water. Captina soils have a distinct fragipan. Although the formation of the fragipan is obscure, it is clear that some time is required for its formation.

Most of the soils in Madison County are intermediate in age. Alred and Clarksville soils formed on steep slopes. They have an eluviated subsurface horizon and translocated clay in the subsoil horizons.

The age of a soil, as expressed in profile

characteristics, is not necessarily a reflection of time in years but is a result of the interaction of various soil-forming factors over periods of time. The age is

influenced by topography and climate. It is determined by the degree of profile development and not by the years the soil material has existed.



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# Glossary

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**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.

**Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipyridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Area reclaim** (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Argillite.** Weakly metamorphosed mudstone or shale.

**Aspect.** The direction in which a slope faces.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low ..... 0 to 3

Low ..... 3 to 6

Moderate ..... 6 to 9

High ..... 9 to 12

Very high ..... more than 12

**Backslope.** The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**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.

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

**Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

**Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

**Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

**Blowout.** A shallow depression from which all or most of the soil material has been removed by

the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

**Board foot.** A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board 1 foot wide, 1 foot long, and 1 inch thick before finishing.

**Bottomland.** The normal flood plain of a stream, subject to flooding.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

**Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

**Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

**Cable yarding.** A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

**Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

**California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

**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.

**Channeled.** Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

**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.

**Clayey soil.** Silty clay, sandy clay, or clay.

**Clearcut.** A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from the adjacent stands.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Closed depression.** A low area completely surrounded by higher ground and having no natural outlet.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that is 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.

**Codominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

**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.

**Commercial forest.** Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

**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.

**Compressible** (in tables). Excessive decrease in volume of soft soil under load.

**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.

**Conglomerate.** A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

**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."

**Consolidated sandstone.** Sandstone that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry, are not easily crushed, and cannot be textured by the usual field method.

**Consolidated shale.** Shale that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry and are not easily crushed.

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

**Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

**Cropping system.** Growing crops according to a planned system of rotation and management practices.

**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.

**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.

**Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

**Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deep soil.** A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Deep to water** (in tables). Deep to permanent water during the dry season.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

**Depth to bedrock** (in tables). Bedrock is too near the surface for the specified use.

**Dip slope.** A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a

crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

**Dominant trees.** Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

**Drainage class** (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the “Soil Survey Manual.”

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Drainageway.** An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

**Draw.** A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

**Droughty** (in tables). Soil holds too little water for plants during dry periods.

**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.

**Dune.** A mound, ridge, or hill of loose, windblown granular material (generally sand), either bare or covered with vegetation.

**Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost

material through eluviation are eluvial; those that have received material are illuvial.

**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.

**Erodes easily** (in tables). Soil is easily eroded by water.

**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.

**Even aged.** Refers to a stand of trees in which only small differences in age occur between individual trees. A range of 20 years is allowed.

**Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

**Excess lime** (in tables). Excess carbonates in the soil that restrict the growth of some plants.

**Excess salts** (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

**Excess sodium** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

**Excess sulfur** (in tables). Excessive amount of sulfur

in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

**Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

**Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

**Fan terrace.** A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

**Fast intake** (in tables). The rapid movement of water into the soil.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**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*.

**Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

**Fine textured soil.** Sandy clay, silty clay, or clay.

**Firebreak.** 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.

**Flaggy soil material.** Material that is, 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.

**Flooding** (in tables). Soil flooded by moving water from stream overflow or runoff.

**Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

**Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.

**Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

**Forb.** Any herbaceous plant not a grass or a sedge.

**Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.

**Forest 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.

**Fragile** (in tables). A soil that is easily damaged by use or disturbance.

**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.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

**Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.

**Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

**Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that is 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.

**Gypsum.** A mineral consisting of hydrous calcium sulfate.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

**Hard to pack** (in tables). Difficult to compact using regular earthwork construction equipment.

**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.

**Heavy metal.** Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.

**Highly erodible** (in tables). Soil has an erodibility index greater than 8 and is very susceptible to erosion by water.

**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.

**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.

**Infrequent flooding** (in tables). Flooding occurs at an interval that limits riparian plant species.

**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 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.

**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.

**Ksat.** Saturated hydraulic conductivity. (See Permeability.)

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension)

and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loamy soil.** Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Low adsorption** (in tables). Low amounts of cations are adsorbed from wastes applied to the soil.

**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.

**Low strength.** The soil is not strong enough to support loads.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mean annual increment (MAI).** The average annual increase in volume of a tree during the entire life of the tree.

**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.

**Merchantable trees.** Trees that are of sufficient size to be economically processed into wood products.

**Mesa.** A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

**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.

**Micro-high.** An area that is 2 to 12 inches higher than the adjacent micro-low.

**Micro-low.** An area that is 2 to 12 inches lower than the adjacent micro-high.

**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 deep soil.** A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**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.

**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).

**Mountain.** A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

**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.

**Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

**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

**Overstory.** The trees in a forest that form the upper crown cover.

**Oxbow.** The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedisediment.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The downward movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water

through the soil adversely affects the specified use.

**Permafrost.** Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperature below freezing has existed continuously for a long time.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow .....	0.0 to 0.01 inch
Very slow .....	0.01 to 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate .....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid .....	more than 20 inches

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

**Plowpan.** A compacted layer formed in the soil directly below the plowed layer.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poor filter** (in tables). Because of rapid or very rapid

permeability, the soil may not adequately filter effluent from a waste disposal system.

**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.

**Poor outlets** (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

**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.

**Quartzite, sedimentary.** Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

**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.

**Relict stream terrace.** One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

**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.

**Riser.** The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or base level.

**Riverwash.** Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Rock outcrop.** Exposures of bare bedrock other than lava flows and rock-lined pits.

**Rooting depth (in tables).** Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Rubble land.** Areas that have more than 90 percent of the surface covered by stones or boulders. Voids contain no soil material and virtually no vegetation other than lichens. The areas commonly are at the base of mountain slopes, but some are on mountain slopes as deposits of cobbles, stones, and boulders left by Pleistocene glaciation or by periglacial phenomena.

**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 groundwater 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.

**Salinity.** The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

Nonsaline .....	0 to 4
Slightly saline .....	4 to 8
Moderately saline .....	8 to 16
Strongly saline .....	more than 16

**Salty water (in tables).** Water that is too salty for consumption by livestock.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sandstone.** Sedimentary rock containing dominantly sand-sized particles.

**Sandy soil.** Sand or loamy sand.

**Saprolite.** Unconsolidated residual material underlying the soil and grading to hard bedrock below.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**Sawlogs.** Logs of suitable size and quality for the production of lumber.

**Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

- Scribner's log rule.** A method of estimating the number of board feet that can be cut from a log of a given diameter and length.
- Seasonally ponded** (in tables). Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration. Generally occurs during the winter and early spring.
- Seasonal wetness** (in tables). The soil may be wet during the period of desired use. This usually occurs during the winter and early spring.
- Sedimentary plain.** An extensive nearly level to gently rolling or moderately sloping area that is underlain by sedimentary bedrock and that has a slope of 0 to 8 percent.
- 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.
- Sedimentary uplands.** Land areas of bedrock formed from water- or wind-deposited sediments. They are higher on the landscape than the flood plain.
- Seepage** (in tables). The movement of water through the soil. Seepage adversely affects the specified use.
- Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)
- Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.
- Shale.** Sedimentary rock formed by the hardening of a clay deposit.
- Shallow soil.** A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.
- Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.
- Shelterwood system.** A forest management system requiring the removal of a stand in a series of cuts so that regeneration occurs under a partial canopy. After regeneration, a final cut removes the shelterwood and allows the stand to develop in the open as an even-aged stand. The system is well suited to sites where shelter is needed for regeneration, and it can aid regeneration of the more intolerant tree species in a stand.
- 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.
- Shoulder slope.** The uppermost inclined surface at the top of a hillside. It is the transition zone from the backslope to the summit of a hill or mountain. 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.
- Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.
- Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.
- Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.
- Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.
- Sinkhole.** A depression in the landscape where limestone has been dissolved.
- Site class.** A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.
- Site curve (50-year).** A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.
- Site curve (100-year).** A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level

is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Skid trails.** Pathways along which logs are dragged to a common site for loading onto a logging truck.

**Slash.** The branches, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

**Slickens.** Accumulations of fine textured material, such as material separated in placer-mine and ore-mill operations. Slickens from ore mills commonly consist of freshly ground rock that has undergone chemical treatment during the milling process.

**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.

**Slick spot.** A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

**Slippage** (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level .....	0 to 1 percent
Nearly level .....	0 to 2 percent
Very gently sloping .....	1 to 3 percent
Gently sloping .....	2 to 5 percent
Moderately sloping .....	3 to 8 percent
Strongly sloping .....	8 to 15 percent
Moderately steep .....	15 to 20 percent
Steep .....	20 to 35 percent
Very steep .....	35 percent and higher

Classes for complex slopes are as follows:

Level .....	0 to 1 percent
Nearly level .....	0 to 2 percent
Gently undulating .....	1 to 3 percent
Undulating .....	2 to 5 percent
Gently rolling .....	3 to 8 percent
Rolling .....	8 to 15 percent
Hilly .....	15 to 20 percent
Steep .....	20 to 35 percent
Very steep .....	35 percent and higher

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Slope/erodibility** (in tables). A combination of slope and susceptibility to water erosion may be restrictive in the use of this soil.

**Slow intake** (in tables). The slow movement of water into the soil.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Small stones** (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**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 over periods of time.

**Soil reaction** (in tables). A measure of acidity or alkalinity of a soil, expressed in pH values, which indicates that the soil reaction is either too high or too low for the intended use.

**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.
- Species.** A single, distinct kind of plant or animal having certain distinguishing characteristics.
- Stickiness (surface)** (in tables). The soil is slippery and sticky when wet and slow to dry.
- Stone line.** A concentration of coarse 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.
- Strath terrace.** A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.
- Stream channel.** The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.
- Stream terrace.** One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.
- Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.
- Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single 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.
- Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.
- Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.
- Substratum.** The part of the soil below the solum.
- Subsurface layer.** Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.
- Subsurface layer.** Any subsurface soil horizon (A, E, AB, or EB) below the surface layer.
- Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.
- Summit.** A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.
- 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.
- Tailwater.** The water directly downstream of a structure.
- Talus.** Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.
- Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.
- 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 textural classes are *C—clay*, *CL—clay loam*, *COS—coarse sand*, *COSL—coarse sandy loam*, *FS—fine sand*, *FSL—fine sandy loam*, *L—loam*, *LCOS—loamy coarse sand*, *LFS—loamy fine sand*, *LS—loamy sand*, *LVFS—loamy very fine sand*, *S—sand*, *SC—sandy clay*, *SCL—sandy clay loam*, *SI—silt*, *SIC—silty clay*, *SICL—silty clay loam*, *SIL—silt loam*, *SL—sandy loam*, *VFS—very fine sand*, and *VFSL—very fine sandy loam*. Terms used in lieu of texture are *WB—weathered bedrock* and *UWB—unweathered bedrock*. The texture modifiers that may apply to textural classes are *BY—bouldery*, *BYV—very bouldery*, *BYX—extremely bouldery*, *CB—cobbly*, *CBV—very cobbly*, *CBX—extremely cobbly*, *CN—channery*, *CNV—very channery*, *CNX—extremely channery*, *FL—flaggy*, *FLV—very flaggy*, *FLX—extremely flaggy*, *GR—gravelly*, *GRV—very gravelly*, *GRX—extremely gravelly*, *PCN—parachannery*, *PCNV—very parachannery*, *SR—stratified*, *ST—stony*, *STV—very stony*, and *STX—extremely stony*.

**Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toeslope.** The outermost inclined surface at the base of a hill; part of a footslope.

**Too acid** (in tables). The soil is so acid that growth of plants is restricted.

**Too arid** (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

**Too clayey** (in tables). The soil is slippery and sticky when wet and slow to dry.

**Too sandy** (in tables). The soil is soft and loose, droughty, and low in fertility or is too fine to use as gravel.

**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.

**Toxicity** (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

**Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Trafficability.** The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

**Tread.** The relatively flat surface that was cut or built by stream or wave action.

**Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.

**Unstable fill** (in tables). Risk of caving or sloughing on banks of fill material.

**Upland.** Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

**Valley.** An elongated depressional area primarily developed by stream action.

**Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

**Variation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

**Very deep soil.** A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Very shallow soil.** A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.

**Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

**Water-spreading.** Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.

**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.

**Wetness** (in tables). The soil is wet during the period of desired use.

**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.