



United States  
Department of  
Agriculture



Natural  
Resources  
Conservation  
Service

In cooperation with  
Missouri Department of  
Natural Resources;  
University of Missouri,  
Agricultural Experiment  
Station; Missouri  
Department of  
Conservation; McDonald  
County Soil and Water  
Conservation District; and  
McDonald County  
Commission

# Soil Survey of McDonald County, Missouri





# How To Use This Soil Survey

## General Soil Map

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

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

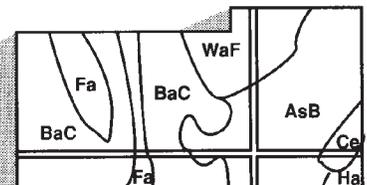
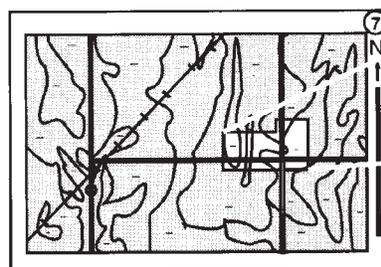
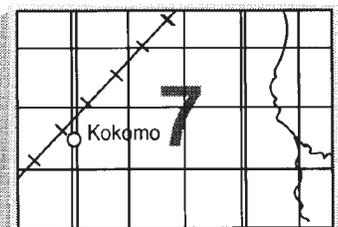
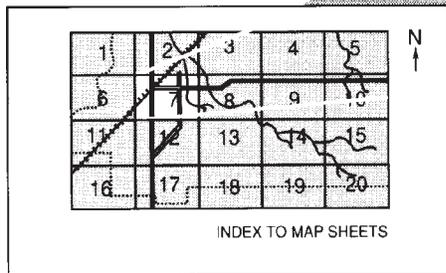
## Detailed Soil Maps

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

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

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

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



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

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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 2002. Soil names and descriptions were approved in 2004. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2002. This survey was made cooperatively by the Natural Resources Conservation Service; the Missouri Department of Natural Resources; the University of Missouri, Agricultural Experiment Station; the Missouri Department of Conservation; the McDonald County Soil and Water Conservation District; and the McDonald County Commission. The survey is part of the technical assistance furnished to the McDonald County Soil and Water Conservation District. The Missouri Department of Natural Resources provided financial assistance.

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: A view of Penitentiary Bend along Big Sugar Creek. The flood plain is in an area of the Cedargap-Pomme-Waben association.**

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

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# Foreword

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

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

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

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

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

Roger A. Hansen  
State Conservationist  
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# Soil Survey of McDonald County, Missouri

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Jeffrey A. Woodward, Missouri Department of Natural Resources

Fieldwork by Kenneth L. Gregg and Alan C. Peer, Natural Resources Conservation  
Service, and Jeffrey A. Woodward, Matt D. Ojile, and J. Scott Eversoll, Missouri  
Department of Natural Resources

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

McDONALD COUNTY is in southwestern Missouri (fig. 1). It has an area of 345,837 acres, or about 540 square miles. The county is bordered on the north by Newton County, on the east by Barry County, on the south by Benton County, Arkansas, and on the west by Delaware and Ottawa Counties, Oklahoma. Pineville, near the center of the county, is the county seat. Anderson is the largest town. In 2000, the population of Anderson was 1,432 and the population of McDonald County was 21,681 (State of Missouri, 2000).

The county is in two major land resource areas (MLRAs) in the East and Central Farming and Forest Region (USDA, 2006). The northern part of the county is in MLRA 116B (Springfield Plain), and the southern part is in MLRA 116A (Ozark Highland). Major land resource areas are geographic areas that are characterized by a particular pattern of soils, climate, water resources, and land use.

## General Nature of the County

This section provides some general information about the climate of the survey area. It also describes the history and development of McDonald County.

### Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Anderson, Missouri,

in the period 1964 to 1993. 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 36 degrees F and the average daily minimum temperature is 24.3 degrees. The lowest temperature on record, which occurred on February 4, 1996, is -21 degrees. In summer, the average temperature is 75.3 degrees and the average daily maximum temperature is 86.9 degrees. The highest recorded temperature, which occurred on July 14, 1954, is 112 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 43.3 inches. Of this total, about 28.5 inches, or 66 percent, usually falls in April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 5.14 inches on September 30, 1986. Thunderstorms occur on about 52 days each year, and most occur between May and August.

The average seasonal snowfall is 15.1 inches. The heaviest 1-day snowfall on record is 12 inches



Figure 1.—Location of McDonald County in Missouri.

recorded on February 16, 1993. On the average, 15 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 66 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the south for most of the year but is from the northwest during February and March. Average windspeed is highest, between 11 and 12 miles per hour, from November to April.

## History and Development

McDonald County was fully organized in 1849. It was named for Alexander McDonald, who was a soldier in the Revolutionary War. Pineville was laid out by Nathan Richardson in 1847. The county seat was moved there in 1857. At the headwaters of the Pine River, Pineville was a lively trading post for Native Americans from Oklahoma. A Jesse James movie was filmed there in 1938 (State Historical Society of Missouri, 1998).

Some of the earliest settlers in the survey area were from Tennessee and Kentucky. The 1840s brought the “Pine War” between settlers and U.S. Marshals over cutting trees on public land. In the 1850s, bands of “slickers” briefly tried to stop land sales. During the Civil War, this pro-South county on the Arkansas and Oklahoma borders saw heavy troop

movement, sharp skirmishes, and guerrilla raids. The historic Pea Ridge battlefield, just across the border in Arkansas, was the site of a decisive Union victory in March of 1862.

McDonald County is in a region of dairy, livestock, and poultry farming. Fruit and timber also are significant in the area. Processing plants are in Noel and Anderson. Near Anderson is the site of Splitlog, once a boom town, where Mathias Splitlog, a wealthy Wyandotte Indian, went broke mining fool’s gold. Splitlog established the county’s first railroad.

At South West City, which was settled in the 1840s, is the tri-state boundary marker bearing the dates when Missouri, Arkansas, and Oklahoma were admitted into the Union. Other towns in the county include Noel, Rocky Comfort, Tiff City, Goodman, Powell, Jane, and Lanagan.

The county has several interesting caves, including Jacob’s, Bluff Dwellers, Shira, and Ozark Wonder caves. Ancient Bluff Dweller sites, Indian mounds, and Indian trails are in the area. The only Native American Confederate general, Stan Watie, a Cherokee, is buried near South West City.

## How This Survey Was Made

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

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

to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

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

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

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

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

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



# General Soil Map Units

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

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

Because of its small scale, the map is not suitable for planning the management of a farm or field or for

selecting a site for a road or building or other structure. The soils in any one association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

## 1. Cedargap-Pomme-Waben Association (fig. 2)

### Setting

*Landform:* River valleys

*Slope range:* 0 to 15 percent

### Composition

*Extent of the association in the survey area:* 15 percent

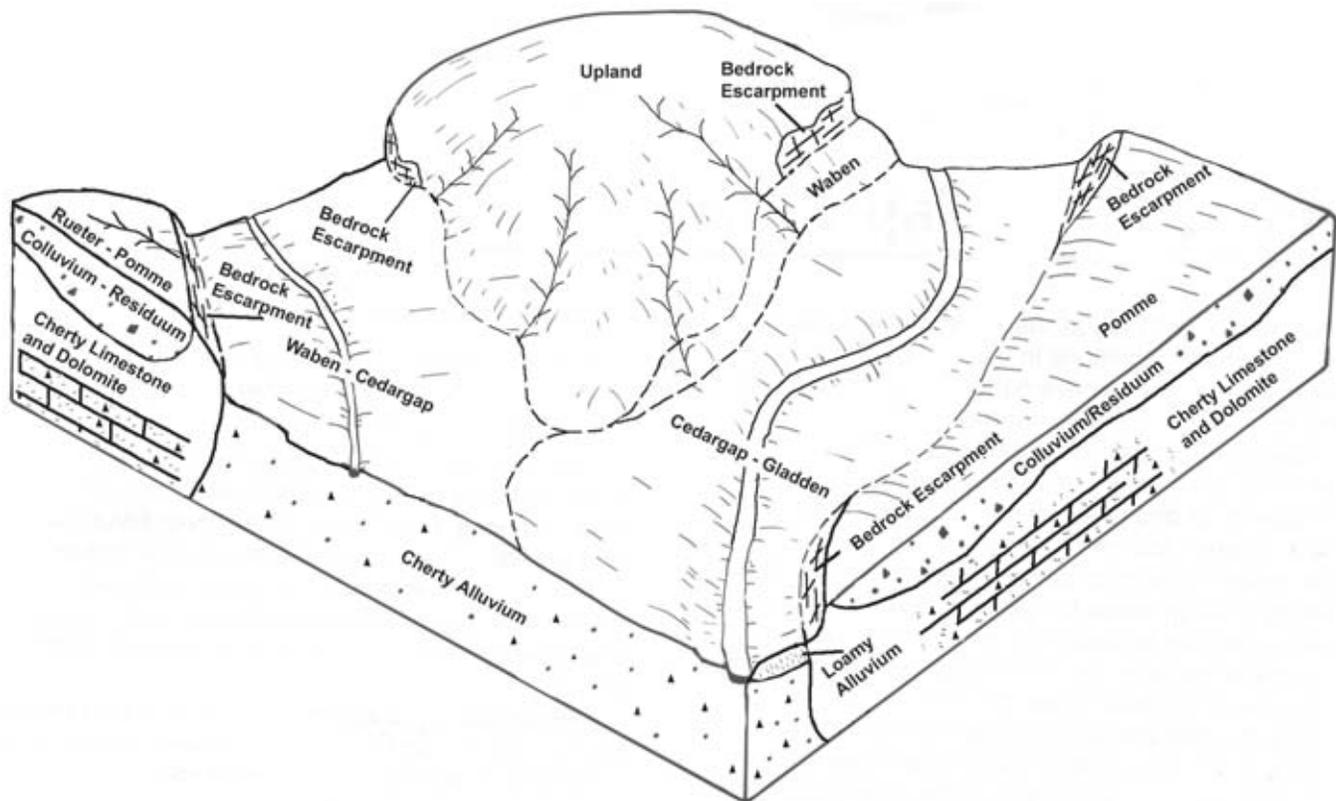


Figure 2.—Typical pattern of soils and parent material in the Cedargap-Pomme-Waben association.

*Extent of the components in the association:*

- Cedargap and similar soils—40 percent
- Pomme and similar soils—30 percent
- Waben and similar soils—20 percent
- Components of minor extent—10 percent

**Components of Minor Extent**

- Bearthicket soils on flood-plain steps
- Hootentown soils on stream terraces
- Hartville soils on strath terraces

**Landscape****Cedargap***Position on the landform:* Flood plains*Parent material:* Gravelly alluvium*Slope:* 0 to 3 percent**Pomme***Position on the landform:* Footslopes*Parent material:* Loamy colluvium over gravelly colluvium over material weathered from cherty limestone*Slope:* 1 to 15 percent**Waben***Position on the landform:* Toeslopes*Parent material:* Gravelly alluvium and/or gravelly colluvium*Slope:* 2 to 8 percent**2. Townhole-Paintbrush-Friendly Association (fig. 3)****Setting***Landform:* Interfluves*Slope range:* 0 to 8 percent**Composition***Extent of the association in the survey area:* 2 percent*Extent of the components in the association:*

- Townhole and similar soils—40 percent
- Paintbrush and similar soils—25 percent
- Friendly and similar soils—15 percent
- Components of minor extent—20 percent

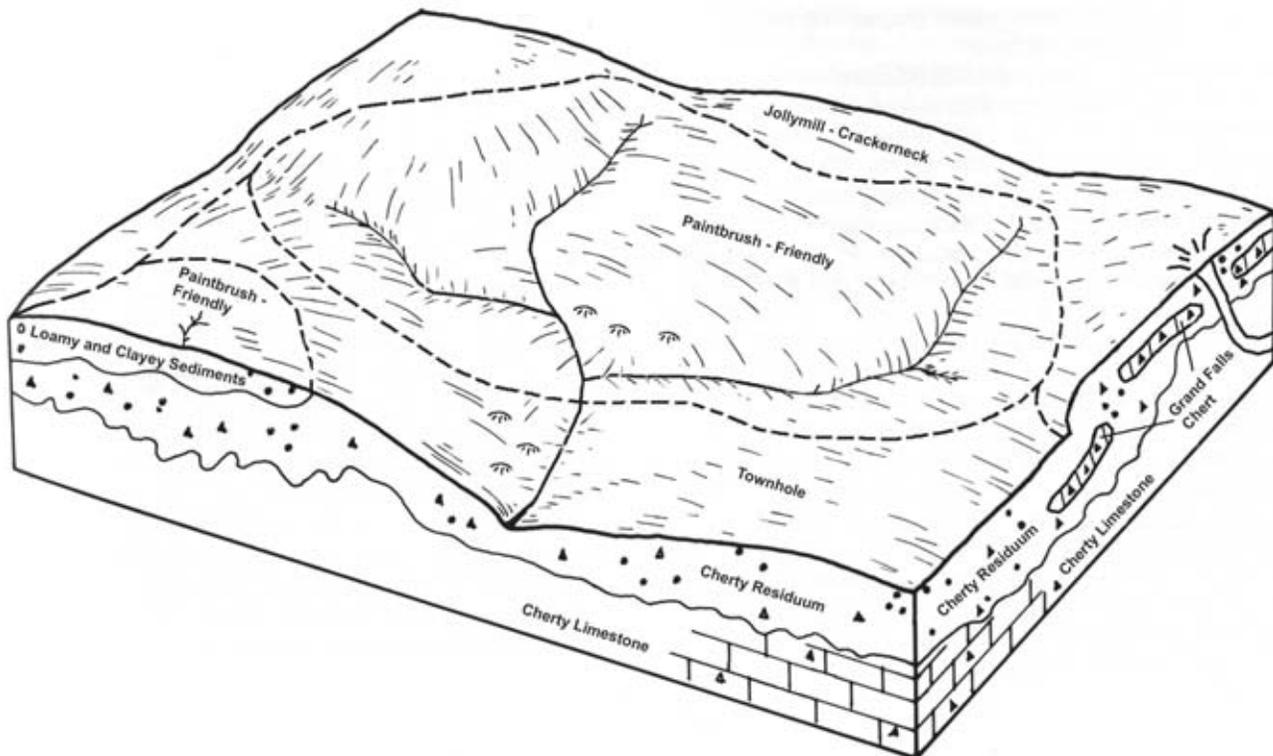


Figure 3.—Typical pattern of soils and parent material in the Townhole-Paintbrush-Friendly association.

**Components of Minor Extent**

- Eldorado soils on hills
- Pembroke soils in sinkholes

**Landscape**

**Townhole**

*Position on the landform:* Summits or backslopes  
*Parent material:* Loamy colluvium over gravelly slope alluvium over old alluvium or gravelly material weathered from cherty limestone  
*Slope:* 1 to 5 percent

**Paintbrush**

*Position on the landform:* Backslopes or summits  
*Parent material:* Loamy colluvium over gravelly material weathered from cherty limestone  
*Slope:* 1 to 3 percent

**Friendly**

*Position on the landform:* Head slopes or backslopes

*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone  
*Slope:* 1 to 3 percent

**3. Jollymill-Crackerneck Association (fig. 4)**

**Setting**

*Landform:* Interfluves  
*Slope range:* 1 to 15 percent

**Composition**

*Extent of the association in the survey area:* 5 percent  
*Extent of the components in the association:*  
 Jollymill and similar soils—55 percent  
 Crackerneck and similar soils—40 percent  
 Components of minor extent—5 percent

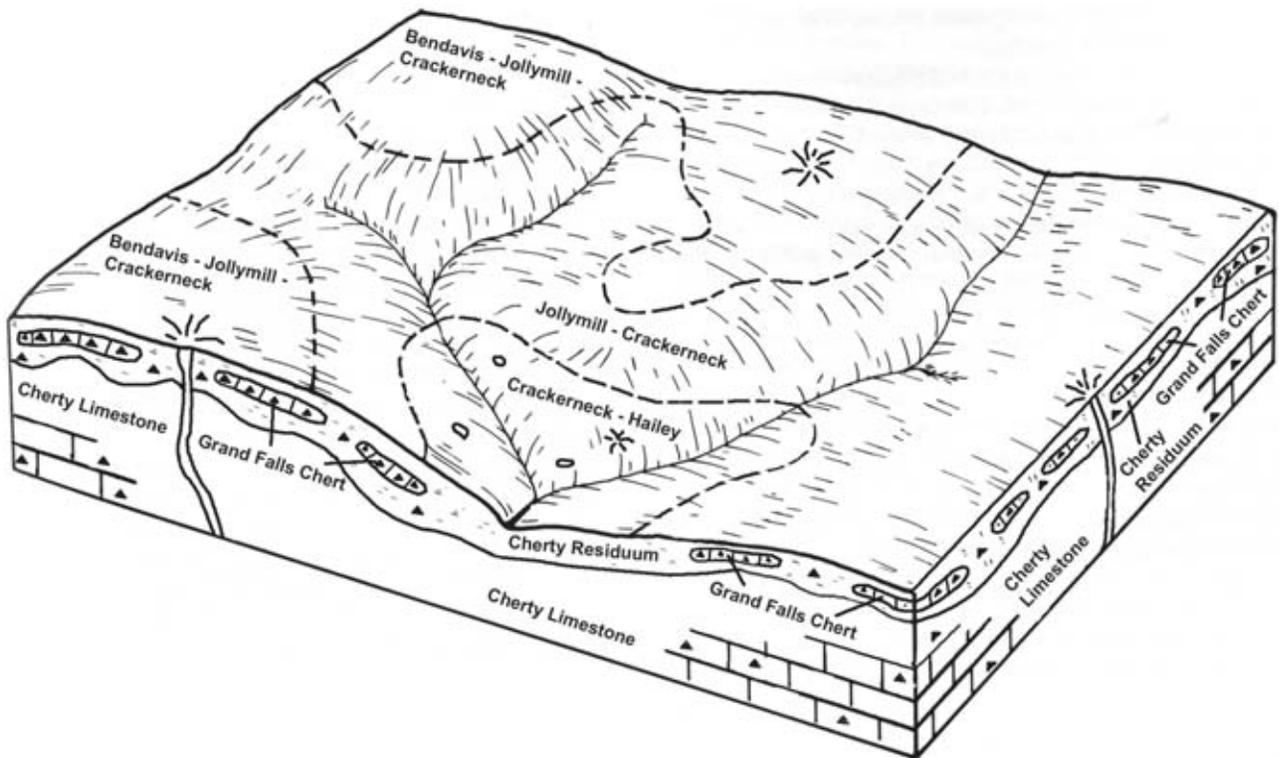


Figure 4.—Typical pattern of soils and parent material in the Jollymill-Crackerneck association.

### Components of Minor Extent

- Hailey soils on shoulders

### Landscape

#### Jollymill

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone

*Slope:* 1 to 8 percent

#### Crackerneck

*Position on the landform:* Summits or shoulders

*Parent material:* Gravelly colluvium over material weathered from cherty limestone

*Slope:* 1 to 15 percent

## 4. Moko-Eldorado-Boskydell Association (fig. 5)

### Setting

*Landform:* Interfluves

*Slope range:* 3 to 50 percent

### Composition

*Extent of the association in the survey area:* 3 percent

*Extent of the components in the association:*

- Moko and similar soils—40 percent
- Eldorado and similar soils—20 percent
- Boskydell and similar soils—20 percent
- Components of minor extent—20 percent

### Components of Minor Extent

- Gobbler soils on summits
- Rock outcrop on summits, shoulders, and backslopes
- Pomme soils on footslopes

### Landscape

#### Moko

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

*Parent material:* Gravelly material weathered from dolostone or cherty limestone

*Slope:* 3 to 50 percent

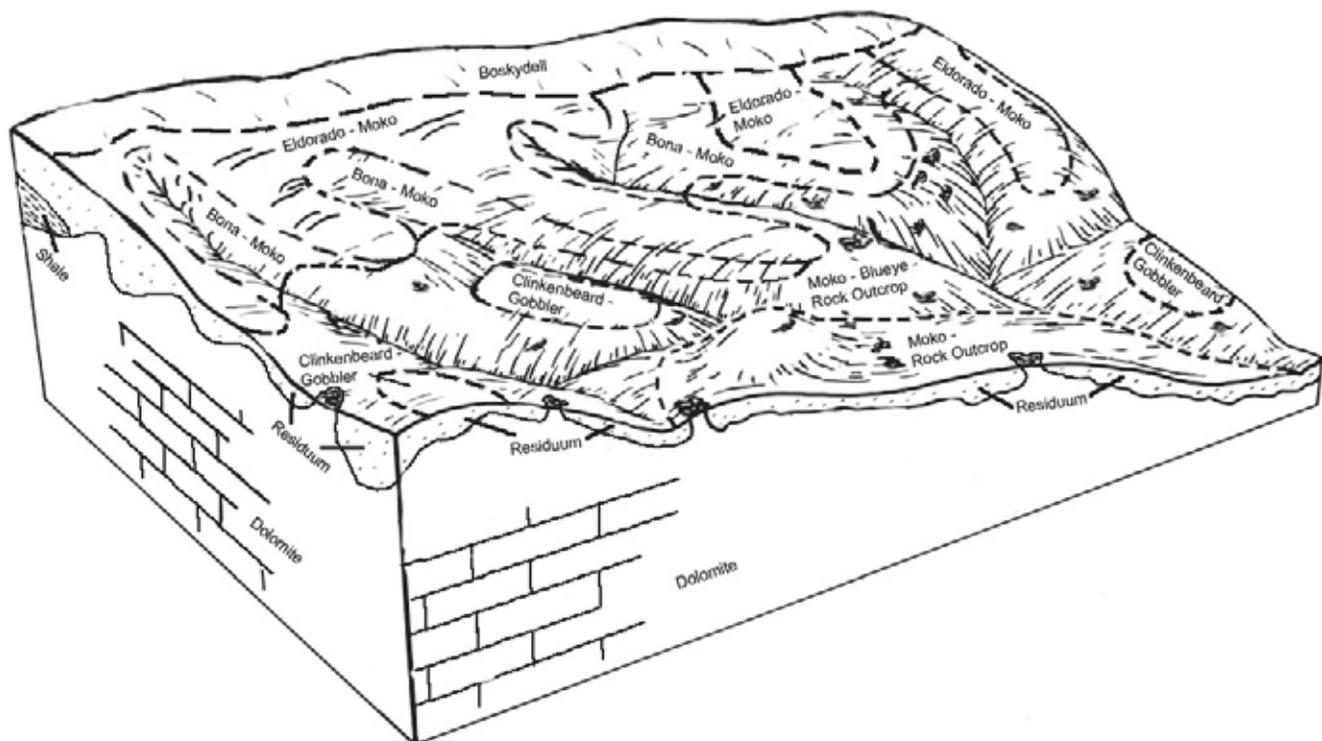


Figure 5.—Typical pattern of soils and parent material in the Moko-Eldorado-Boskydell association.

**Eldorado**

*Position on the landform:* Summits  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope:* 3 to 8 percent

**Boskydell**

*Position on the landform:* Footslopes  
*Parent material:* Gravelly colluvium derived from cherty limestone over clayey material weathered from shale  
*Slope:* 3 to 8 percent

**5. Crackerneck-Clarksville-Noark Association (fig. 6)**

**Setting**

*Landform:* Interfluves  
*Slope range:* 1 to 20 percent

**Composition**

*Extent of the association in the survey area:* 10 percent  
*Extent of the components in the association:*  
 Crackerneck and similar soils—40 percent  
 Clarksville and similar soils—35 percent  
 Noark and similar soils—25 percent

**Landscape**

**Crackerneck**

*Position on the landform:* Summits or shoulders  
*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone  
*Slope:* 1 to 8 percent

**Clarksville**

*Position on the landform:* Summits or shoulders  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope:* 3 to 8 percent

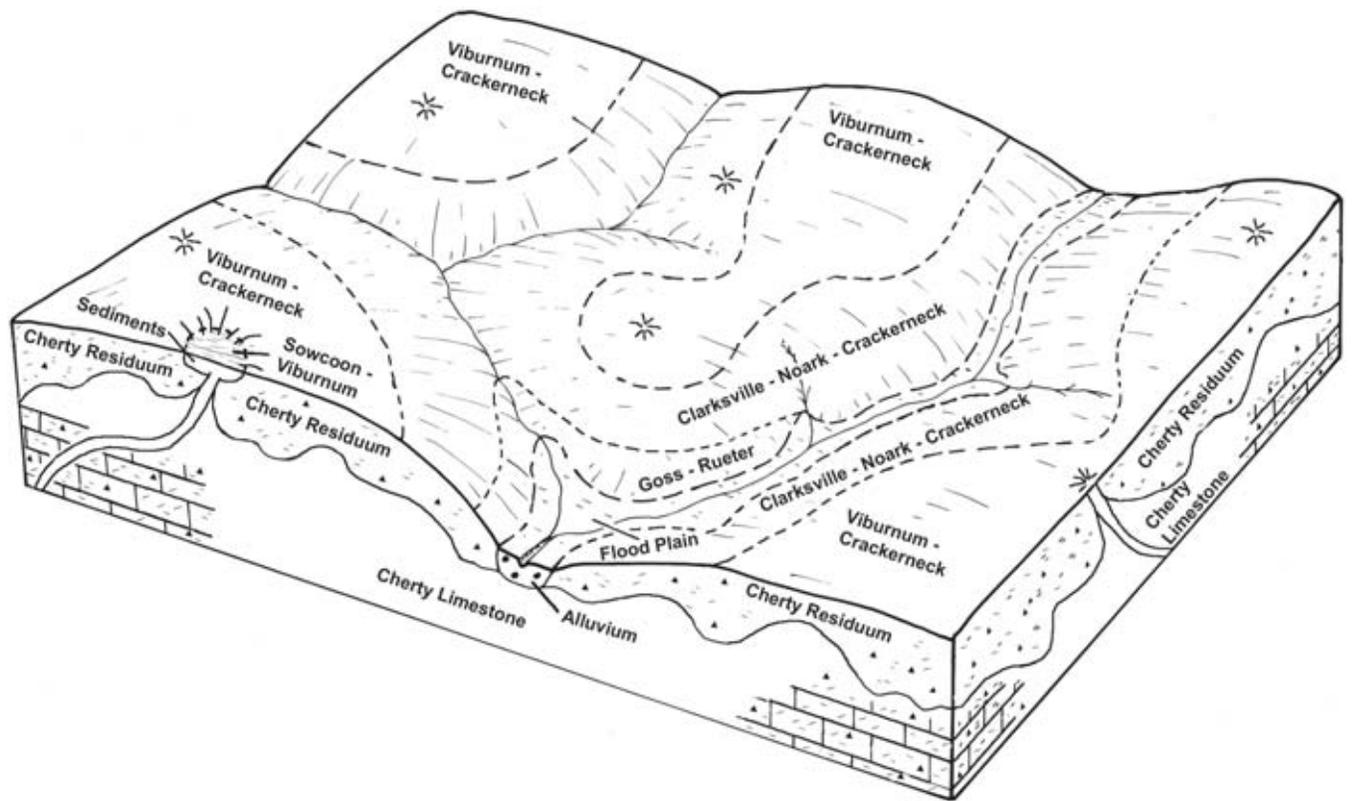


Figure 6.—Typical pattern of soils and parent material in the Crackerneck-Clarksville-Noark association.

**Noark**

*Position on the landform:* Summits or shoulders  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope:* 3 to 8 percent

## 6. Jollymill-Sonsac-Hailey Association (fig. 7)

**Setting**

*Landform:* Interfluves  
*Slope range:* 3 to 100 percent

**Composition**

*Extent of the association in the survey area:* 27 percent  
*Extent of the components in the association:*  
 Jollymill and similar soils—40 percent  
 Sonsac and similar soils—30 percent  
 Hailey and similar soils—20 percent  
 Components of minor extent—10 percent

**Components of Minor Extent**

- Rock outcrop on backslopes
- Boskydell soils on backslopes and footslopes

**Landscape****Jollymill**

*Position on the landform:* Summits or backslopes  
*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone  
*Slope:* 3 to 35 percent

**Sonsac**

*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope:* 35 to 70 percent

**Hailey**

*Position on the landform:* Backslopes

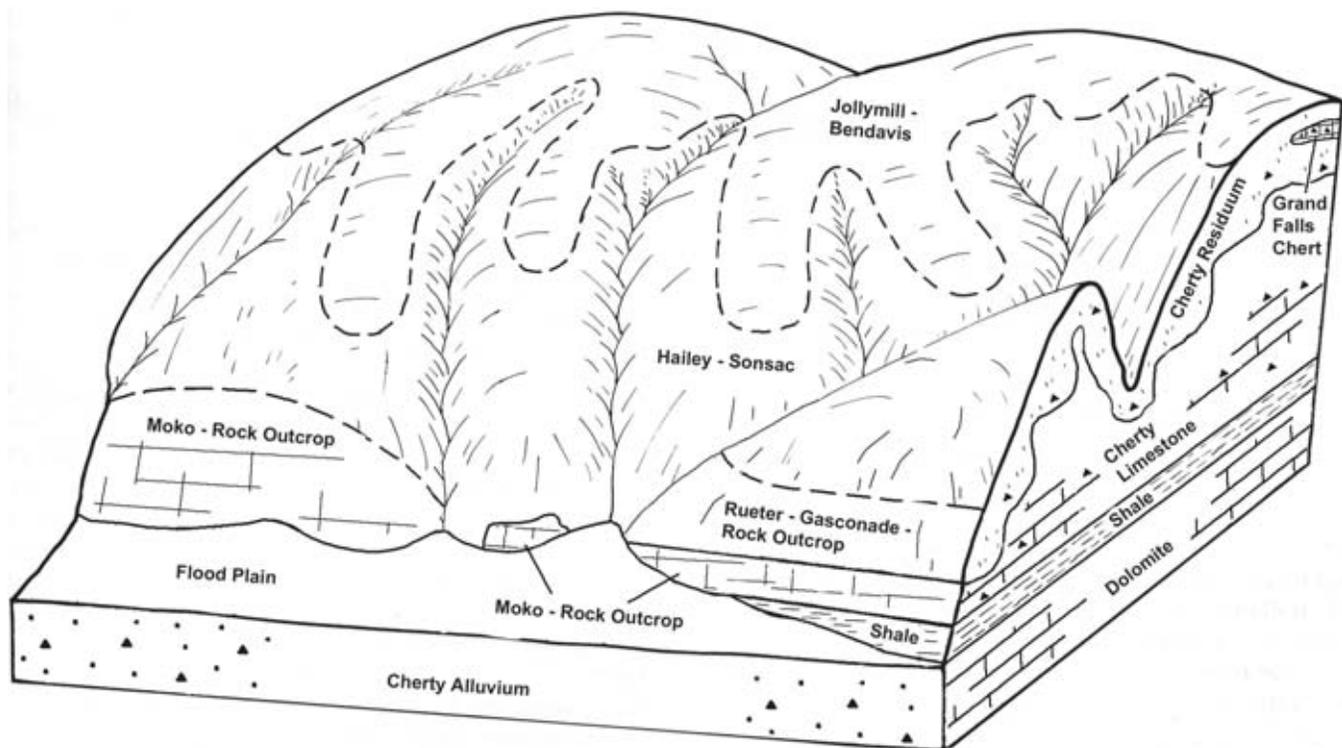


Figure 7.—Typical pattern of soils and parent material in the Jollymill-Sonsac-Hailey association.

*Parent material:* Colluvium derived from cherty limestone over residuum derived from cherty limestone  
*Slope:* 35 to 70 percent

**Landscape**

**Rueter**

*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope:* 15 to 35 percent

**Goss**

*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over clayey material weathered from cherty limestone  
*Slope:* 15 to 35 percent

**Jollymill**

*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone  
*Slope:* 35 to 70 percent

**7. Rueter-Goss-Jollymill Association (fig. 8)**

**Setting**

*Landform:* Interfluves  
*Slope range:* 15 to 70 percent

**Composition**

*Extent of the association in the survey area:* 38 percent  
*Extent of the components in the association:*  
 Rueter and similar soils—50 percent  
 Goss and similar soils—35 percent  
 Jollymill and similar soils—15 percent

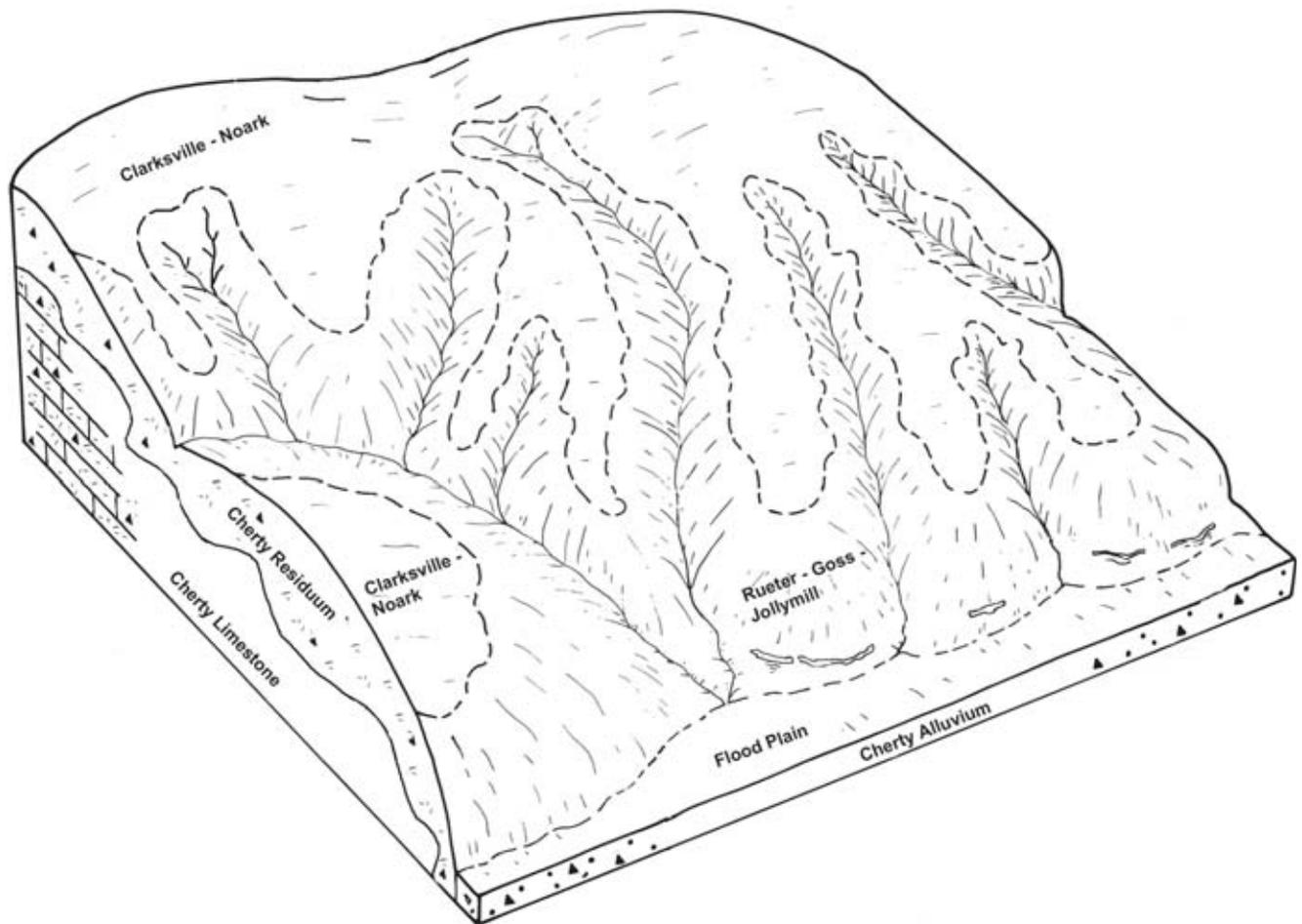


Figure 8.—Typical pattern of soils and parent material in the Rueter-Goss-Jollymill association.



## 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 and gives the principal hazards and limitations to be considered in planning for specific uses.

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

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

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called 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. Rueter-Pomme complex, 3 to 15 percent slopes, is an example.

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

Table 4 lists the map units in this survey area. 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.

### **70067—Pembroke silt loam, karst, 1 to 3 percent slopes, ponded**

#### ***Map Unit Setting***

*Landform:* Sinkholes on structural benches

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

##### **Pembroke**

*Percent of the map unit:* 85 percent

*Position on the landform:* Summits

*Parent material:* Fine-silty colluvium over material weathered from cherty limestone

*Slope shape:* Concave

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Negligible

*Depth to restrictive feature:* 60 to 80 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

#### **Typical Profile**

Ap—0 to 8 inches; silt loam

A—8 to 15 inches; silt loam

Bt1—15 to 28 inches; silt loam

2Bt2—28 to 69 inches; gravelly silty clay loam

3R—69 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

#### ***Additional Components***

##### **Pomme and similar soils**

*Estimated percent of the map unit:* 5 to 20 percent

*Slope:* 1 to 3 percent

*Landform:* Sinkholes on structural benches

##### **Friendly and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 1 to 3 percent

*Landform:* Sinkholes on structural benches

### **70068—Bendavis-Jollymill-Crackerneck complex, karst, 1 to 3 percent slopes**

#### ***Map Unit Setting***

*Landform:* Interfluves

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

##### **Bendavis**

*Percent of the map unit:* 35 percent

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium or residuum

*Slope shape:* Convex

#### **Component Properties and Qualities**

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

*Surface runoff class:* Very high

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 16 to 36 inches

*Drainage class:* Moderately well drained

#### **Typical Profile**

Ap—0 to 4 inches; gravelly silt loam

Bt—4 to 31 inches; extremely gravelly silt loam

2R—31 to 80 inches; bedrock

##### **Jollymill**

*Percent of the map unit:* 25 percent

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone

*Slope shape:* Convex

#### **Component Properties and Qualities**

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

*Surface runoff class:* Low

*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 18 to 40 inches

*Drainage class:* Moderately well drained

#### **Typical Profile**

A—0 to 3 inches; silt loam

E—3 to 9 inches; gravelly silt loam

Bt1—9 to 19 inches; very gravelly silty clay loam

2Bt2—19 to 43 inches; extremely gravelly clay

3R—43 to 80 inches; bedrock

**Crackerneck**

*Percent of the map unit:* 25 percent

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone

*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Low

*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 16 to 40 inches

*Drainage class:* Moderately well drained

**Typical Profile**

A—0 to 4 inches; gravelly silt loam

E—4 to 13 inches; extremely gravelly silt loam

BE—13 to 25 inches; extremely gravelly silt loam

Bt—25 to 39 inches; extremely cobbly silt loam

2Bt—39 to 51 inches; very paragravelly clay

3Bt—51 to 68 inches; paragravelly clay

4R—68 to 80 inches; bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

**Additional Components****Viburnum and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent

*Slope:* 1 to 3 percent

*Landform:* Depressions in interfluves

**Pomme and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent

*Position on the landform:* Summits

*Slope:* 1 to 3 percent

*Landform:* Interfluves

**70069—Jollymill-Crackerneck complex, karst, 3 to 8 percent slopes****Map Unit Setting**

*Landform:* Interfluves

**Component Description****Jollymill**

*Percent of the map unit:* 60 percent

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone

*Slope shape:* Convex

**Component Properties and Qualities**

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

*Surface runoff class:* Medium

*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)

**Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 18 to 40 inches

*Drainage class:* Moderately well drained

**Typical Profile**

Oa—0 to 2 inches; highly decomposed plant material

A—2 to 5 inches; extremely gravelly silt loam

E—5 to 13 inches; extremely gravelly silt loam

Bt1—13 to 22 inches; very gravelly silt loam

2Bt2—22 to 51 inches; very cobbly clay

3R—51 to 80 inches; bedrock

**Crackerneck**

*Percent of the map unit:* 40 percent

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone

*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Medium

*Percent of surface covered by rock fragments:* 0.00 to 0.01 percent (subangular stones)

*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 16 to 40 inches

*Drainage class:* Moderately well drained

**Typical Profile**

A—0 to 5 inches; gravelly silt loam

E—5 to 10 inches; very channery silt

Bt—10 to 22 inches; very gravelly silty clay loam

2Bt—22 to 42 inches; cobbly silt loam

3Bt—42 to 80 inches; clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

## 70070—Crackerneck-Hailey complex, karst, 8 to 15 percent slopes, stony

### Map Unit Setting

*Landform:* Interfluves

### Component Description

#### Crackerneck

*Percent of the map unit:* 60 percent

*Position on the landform:* Shoulders

*Parent material:* Gravelly colluvium over gravelly slope  
alluvium over material weathered from cherty  
limestone

*Slope shape:* Convex

#### Component Properties and Qualities

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Medium

*Percent of surface covered by rock fragments:* 0.01 to  
0.10 percent (subrounded stones)

*Depth to restrictive feature:* 60 to 80 inches to bedrock  
(lithic)

#### Component Hydrologic Properties

*Flooding:* None

*Current depth to water table:* 16 to 40 inches

*Drainage class:* Moderately well drained

#### Typical Profile

A—0 to 5 inches; very gravelly silt

BA—5 to 9 inches; extremely gravelly silt

Bt—9 to 23 inches; extremely gravelly silt loam

2Bt—23 to 42 inches; extremely stony silt loam

3Bt—42 to 68 inches; extremely gravelly silty clay

4R—68 to 80 inches; chert bedrock

#### Hailey

*Percent of the map unit:* 25 percent

*Position on the landform:* Shoulders

*Parent material:* Colluvium derived from cherty  
limestone over material weathered from cherty  
limestone

*Slope shape:* Convex

#### Component Properties and Qualities

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Low

*Percent of surface covered by rock fragments:* 0.01 to  
0.10 percent (subrounded stones)

*Depth to restrictive feature:* More than 60 inches

#### Component Hydrologic Properties

*Flooding:* None

*Current depth to water table:* More than 6 feet

*Drainage class:* Excessively drained

#### Typical Profile

A—0 to 14 inches; extremely gravelly silt loam

2Bw—14 to 60 inches; extremely cobbly silt loam

3Bt—60 to 80 inches; very cobbly silty clay

Detailed profile descriptions are given in the  
“Classification of the Soils” section. Additional  
information is provided in the tables described under  
the heading “Soil Properties.”

#### Additional Components

##### Jollymill and similar soils

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 8 to 15 percent

*Landform:* Shoulders on interfluves

##### Bendavis and similar soils

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 8 to 15 percent

*Landform:* Shoulders on interfluves

## 70071—Sowcoon, ponded-Viburnum complex, 0 to 3 percent slopes

### Map Unit Setting

*Landform:* Sinkholes (fig. 9)

### Component Description

#### Sowcoon

*Percent of the map unit:* 50 percent

*Parent material:* Silty colluvium over loess and  
pedisediment

*Slope shape:* Concave

#### Component Properties and Qualities

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Negligible

*Depth to restrictive feature:* 30 to 45 inches to dense  
material

#### Component Hydrologic Properties

*Flooding:* None

*Current depth to water table:* 12 to 24 inches

*Drainage class:* Somewhat poorly drained

#### Typical Profile

A—0 to 17 inches; silt loam

Bt—17 to 33 inches; silty clay loam



Figure 9.—A sinkhole in an area of Sowcoon, ponded-Viburnum complex, 0 to 3 percent slopes.

2Btgx—33 to 45 inches; very gravelly silty clay loam

2Btg—45 to 80 inches; gravelly silty clay loam

#### **Viburnum**

*Percent of the map unit:* 40 percent

*Parent material:* Fine colluvium over gravelly valley side alluvium

*Slope shape:* Concave

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Negligible

*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 18 to 30 inches

*Drainage class:* Moderately well drained

#### **Typical Profile**

A—0 to 4 inches; silt loam

BE—4 to 7 inches; silt loam

Bt—7 to 24 inches; gravelly silty clay loam

2E/Bt—24 to 42 inches; gravelly silt loam

2Bt—42 to 80 inches; gravelly silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

#### **Additional Components**

##### **Very poorly drained soils**

*Estimated percent of the map unit:* 0 to 20 percent

*Slope:* 0 to 1 percent

*Landform:* Sinkholes

#### **70072—Rueter-Pomme complex, 3 to 15 percent slopes**

##### **Map Unit Setting**

*Landform:* Structural benches

### **Component Description**

#### **Rueter**

*Percent of the map unit:* 45 percent  
*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Low  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Somewhat excessively drained

#### **Typical Profile**

A—0 to 5 inches; very gravelly silt loam  
 E—5 to 29 inches; extremely gravelly silt loam  
 Bt—29 to 41 inches; extremely gravelly silt loam  
 2Bt—41 to 80 inches; very gravelly clay loam

#### **Pomme**

*Percent of the map unit:* 45 percent  
*Position on the landform:* Summits  
*Parent material:* Loamy colluvium over gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Low  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### **Typical Profile**

Ap—0 to 7 inches; silt loam  
 Bt1—7 to 24 inches; silt loam  
 2Bt2—24 to 58 inches; extremely gravelly clay loam  
 3Bt3—58 to 80 inches; extremely gravelly clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

### **Additional Components**

#### **Aslinger and similar soils**

*Estimated percent of the map unit:* 0 to 5 percent  
*Slope:* 3 to 8 percent  
*Landform:* Backslopes on structural benches

#### **Moko and similar soils**

*Estimated percent of the map unit:* 0 to 5 percent  
*Slope:* 8 to 15 percent  
*Landform:* Backslopes on structural benches

#### **Sonsac and similar soils**

*Estimated percent of the map unit:* 0 to 5 percent  
*Slope:* 8 to 15 percent  
*Landform:* Backslopes on structural benches

### **70073—Beemont cobbly fine sandy loam, 5 to 20 percent slopes, extremely stony**

#### **Map Unit Setting**

*Landform:* Monadnocks

### **Component Description**

#### **Beemont**

*Percent of the map unit:* 90 percent  
*Position on the landform:* Backslopes  
*Parent material:* Material weathered from cherty limestone over material weathered from shale and/or material weathered from sandstone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Deep (40 to 60 inches)  
*Surface runoff class:* Very high  
*Percent of surface covered by rock fragments:* 3 to 15 percent (subrounded stones)  
*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### **Typical Profile**

A—0 to 4 inches; cobbly fine sandy loam  
 E—4 to 10 inches; cobbly fine sandy loam  
 2Bt—10 to 44 inches; clay

2C—44 to 49 inches; channery sandy clay loam  
 2R—49 to 80 inches; bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

***Additional Components***

**Lily and similar soils**

*Estimated percent of the map unit: 0 to 5 percent*  
*Slope: 5 to 20 percent*  
*Landform: Backslopes on monadnocks*

**Moko and similar soils**

*Estimated percent of the map unit: 0 to 5 percent*

*Slope: 5 to 20 percent*  
*Landform: Backslopes*

**Rock outcrop**

*Estimated percent of the map unit: 0 to 5 percent*  
*Landform: Backslopes*

**70074—Townhole silt loam, 1 to 5 percent slopes**

***Map Unit Setting***

*Landform: Structural benches (fig. 10)*

***Component Description***

**Townhole**

*Percent of the map unit: 90 percent*



Figure 10.—Bermudagrass in an area of Townhole silt loam, 1 to 5 percent slopes.

*Position on the landform:* Backslopes  
*Parent material:* Loamy colluvium over gravelly slope  
 alluvium over gravelly residuum  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Low  
*Depth to restrictive feature:* 60 to 80 inches to bedrock  
 (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* 18 to 40 inches  
*Drainage class:* Moderately well drained

#### **Typical Profile**

Ap—0 to 15 inches; silt loam  
 Bt—15 to 28 inches; extremely gravelly silty clay loam  
 2Bt—28 to 47 inches; very gravelly clay loam  
 3Bt—47 to 72 inches; extremely gravelly silty clay  
 4Bt—72 to 79 inches; clay  
 4R—79 to 80 inches; bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

#### **Additional Components**

##### **Soils that are 20 to 40 inches deep to bedrock**

*Estimated percent of the map unit:* 0 to 15 percent  
*Slope:* 1 to 5 percent  
*Landform:* Backslopes on structural benches

##### **70075—Waben extremely gravelly silt loam, 3 to 8 percent slopes**

#### **Map Unit Setting**

*Landform:* Fan terraces

#### **Component Description**

##### **Waben**

*Percent of the map unit:* 100 percent  
*Position on the landform:* Risers  
*Parent material:* Gravelly alluvium and/or gravelly colluvium  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Low

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### **Typical Profile**

A—0 to 8 inches; extremely gravelly silt loam  
 BA—8 to 16 inches; extremely gravelly silt loam  
 Bt—16 to 80 inches; extremely gravelly silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

##### **70076—Clarksville-Noark complex, 3 to 15 percent slopes**

#### **Map Unit Setting**

*Landform:* Ridges (fig. 11)

#### **Component Description**

##### **Clarksville**

*Percent of the map unit:* 50 percent  
*Position on the landform:* Summits  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Low  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Somewhat excessively drained

#### **Typical Profile**

A—0 to 3 inches; very gravelly silt loam  
 E—3 to 15 inches; very gravelly silt loam  
 Bt—15 to 25 inches; extremely gravelly silt loam  
 2Bt—25 to 80 inches; very gravelly silty clay

##### **Noark**

*Percent of the map unit:* 40 percent  
*Position on the landform:* Summits  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex



Figure 11.—A forest ecosystem being managed for savanna restoration in an area of Clarksville-Noark complex, 3 to 15 percent slopes.

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

**Typical Profile**

A—0 to 4 inches; very gravelly silt loam  
 E—4 to 10 inches; very gravelly silt loam  
 Bt—10 to 20 inches; extremely gravelly silt loam  
 2Bt—20 to 80 inches; extremely cobbly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional

information is provided in the tables described under the heading “Soil Properties.”

**Additional Components**

**Crackerneck and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 3 to 8 percent  
*Landform:* Summits of ridges

**Bendavis and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 8 to 15 percent  
*Landform:* Backslopes of ridges

**Flagspring and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 3 to 8 percent  
*Landform:* Summits of ridges

**70077—Flagspring extremely gravelly silt loam, 3 to 15 percent slopes**

**Map Unit Setting**

*Landform:* Ridges

**Component Description**

**Flagspring**

*Percent of the map unit:* 90 percent  
*Position on the landform:* Summits  
*Parent material:* Gravelly colluvium over material weathered from limestone over material weathered from limestone and/or tripoli residuum  
*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

**Typical Profile**

A—0 to 5 inches; extremely gravelly silt loam  
 E—5 to 10 inches; very gravelly silt loam  
 Bt1—10 to 22 inches; very gravelly silty clay loam  
 2Bt2—22 to 33 inches; clay  
 3B/C—33 to 80 inches; very paracobbly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional

information is provided in the tables described under the heading "Soil Properties."

### **Additional Components**

#### **Pomme and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 3 to 15 percent

*Landform:* Footslopes

#### **Noark and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 3 to 15 percent

*Landform:* Ridges

### **70078—Goss-Rueter complex, 8 to 20 percent slopes**

#### **Map Unit Setting**

*Landform:* Interfluves

#### **Component Description**

##### **Goss**

*Percent of the map unit:* 50 percent

*Position on the landform:* Backslopes

*Parent material:* Gravelly colluvium over clayey material weathered from cherty limestone

*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Medium

*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

#### **Typical Profile**

A—0 to 3 inches; extremely gravelly silt loam

E—3 to 21 inches; extremely gravelly silt loam

Bt—21 to 32 inches; extremely gravelly silty clay loam

2Bt—32 to 80 inches; very gravelly clay

##### **Rueter**

*Percent of the map unit:* 45 percent

*Position on the landform:* Backslopes

*Parent material:* Gravelly colluvium over material weathered from cherty limestone

*Slope shape:* Convex

### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Low

*Depth to restrictive feature:* More than 60 inches

### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

### **Typical Profile**

A—0 to 3 inches; extremely gravelly silt loam

E—3 to 7 inches; extremely gravelly silt loam

Bt—7 to 23 inches; extremely gravelly silt loam

2Bt—23 to 80 inches; extremely stony clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

### **Additional Components**

#### **Pomme and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 8 to 15 percent

*Landform:* Footslopes

### **70079—Viburnum-Crackerneck complex, karst, 1 to 3 percent slopes**

#### **Map Unit Setting**

*Landform:* Divides (fig. 12)

#### **Component Description**

##### **Viburnum**

*Percent of the map unit:* 40 percent

*Position on the landform:* Summits

*Parent material:* Fine colluvium over gravelly slope alluvium

*Slope shape:* Linear, concave

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Low

*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 18 to 30 inches

*Drainage class:* Moderately well drained



Figure 12.—Pasture in an area of Viburnum-Crackerneck complex, karst, 1 to 3 percent slopes.

#### Typical Profile

A—0 to 3 inches; silt loam  
 E—3 to 9 inches; silt  
 Bt—9 to 28 inches; silty clay loam  
 2Bt—28 to 80 inches; extremely gravelly silty clay loam

#### Crackerneck

*Percent of the map unit:* 40 percent  
*Position on the landform:* Summits  
*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone  
*Slope shape:* Linear, convex

#### Component Properties and Qualities

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

#### Component Hydrologic Properties

*Flooding:* None  
*Current depth to water table:* 16 to 40 inches  
*Drainage class:* Moderately well drained

#### Typical Profile

Ap—0 to 4 inches; very gravelly silt loam  
 BE—4 to 11 inches; very gravelly silt loam

Bt—11 to 23 inches; extremely gravelly silty clay loam  
 2Bt—23 to 28 inches; extremely gravelly silty clay loam  
 3Bt—28 to 80 inches; very gravelly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

### **Additional Components**

#### **Noark and similar soils**

*Estimated percent of the map unit:* 0 to 20 percent  
*Slope:* 1 to 3 percent  
*Landform:* Summits on divides

#### **Tonti and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 1 to 3 percent  
*Landform:* Summits on divides

#### **Pomme and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 1 to 3 percent  
*Landform:* Summits on divides

### **70080—Noark-Clarksville-Crackerneck complex, karst, 3 to 8 percent slopes**

#### **Map Unit Setting**

*Landform:* Divides

#### **Component Description**

##### **Noark**

*Percent of the map unit:* 45 percent  
*Position on the landform:* Shoulders  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### **Typical Profile**

Ap—0 to 8 inches; very gravelly silt loam

Bt—8 to 17 inches; very gravelly silt loam  
 2Bt—17 to 36 inches; very gravelly silty clay  
 3Bt—36 to 80 inches; extremely cobbly clay

#### **Clarksville**

*Percent of the map unit:* 30 percent  
*Position on the landform:* Shoulders  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Low  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Somewhat excessively drained

#### **Typical Profile**

Ap—0 to 6 inches; very gravelly silt loam  
 Bt—6 to 39 inches; very gravelly silt loam  
 2Bt—39 to 80 inches; very gravelly silty clay

#### **Crackerneck**

*Percent of the map unit:* 15 percent  
*Position on the landform:* Summits  
*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* 16 to 40 inches  
*Drainage class:* Moderately well drained

#### **Typical Profile**

A—0 to 4 inches; very gravelly silt loam  
 E—4 to 11 inches; very gravelly silt  
 Bt—11 to 18 inches; very gravelly silt loam  
 2Bt—18 to 26 inches; gravelly silt loam  
 3Bt—26 to 80 inches; very cobbly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

### **Additional Components**

#### **Viburnum and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 3 to 8 percent  
*Landform:* Summits on divides

#### **70081—Rueter-Goss-Jollymill complex, 15 to 35 percent slopes**

##### **Map Unit Setting**

*Landform:* Hillsides

##### **Component Description**

#### **Rueter**

*Percent of the map unit:* 50 percent  
*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

##### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* High  
*Depth to restrictive feature:* More than 60 inches

##### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Somewhat excessively drained

##### **Typical Profile**

A—0 to 4 inches; extremely gravelly silt loam  
 BE—4 to 18 inches; extremely gravelly silt loam  
 Bt—18 to 33 inches; extremely gravelly silt loam  
 2Bt—33 to 80 inches; very gravelly clay

#### **Goss**

*Percent of the map unit:* 25 percent  
*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over clayey material weathered from cherty limestone  
*Slope shape:* Convex

##### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* High  
*Depth to restrictive feature:* More than 60 inches

##### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

### **Typical Profile**

Ap—0 to 9 inches; extremely gravelly silt loam  
 Bt—9 to 18 inches; very gravelly silt loam  
 2Bt—18 to 80 inches; extremely gravelly clay

#### **Jollymill**

*Percent of the map unit:* 23 percent  
*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone  
*Slope shape:* Convex

##### **Component Properties and Qualities**

*Depth class:* Deep (40 to 60 inches)  
*Surface runoff class:* High  
*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)

##### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* 18 to 40 inches  
*Drainage class:* Moderately well drained

##### **Typical Profile**

A—0 to 5 inches; gravelly silt loam  
 E—5 to 18 inches; very gravelly silt loam  
 2Bt—18 to 44 inches; very gravelly silt loam  
 3R—44 to 80 inches; bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

### **Additional Components**

#### **Hailey and similar soils**

*Estimated percent of the map unit:* 0 to 5 percent  
*Slope:* 15 to 35 percent  
*Landform:* Backslopes on hillsides

#### **70082—Paintbrush-Friendly complex, 1 to 3 percent slopes**

##### **Map Unit Setting**

*Landform:* Structural benches (fig. 13)

##### **Component Description**

#### **Paintbrush**

*Percent of the map unit:* 60 percent  
*Position on the landform:* Summits



Figure 13.—An old homestead in an area of Paintbrush-Friendly complex, 1 to 3 percent slopes.

*Parent material:* Loamy colluvium over gravelly material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* 20 to 32 inches to dense material

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* 18 to 30 inches  
*Drainage class:* Moderately well drained

#### **Typical Profile**

Ap—0 to 8 inches; silt loam  
 BE—8 to 14 inches; silt loam  
 Bt—14 to 29 inches; silty clay loam  
 2Btx—29 to 37 inches; extremely gravelly silty clay loam  
 3Bt—37 to 80 inches; extremely gravelly clay loam

#### **Friendly**

*Percent of the map unit:* 30 percent  
*Parent material:* Clayey colluvium over material weathered from cherty limestone  
*Slope shape:* Linear, concave

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* 18 to 32 inches to dense material

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* 12 to 24 inches  
*Drainage class:* Somewhat poorly drained

#### **Typical Profile**

Ap—0 to 9 inches; silt loam  
 E—9 to 14 inches; silt loam  
 Bt—14 to 32 inches; silty clay

2Btx—32 to 57 inches; gravelly silty clay loam  
3Bt—57 to 80 inches; very gravelly clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

### **Additional Components**

#### **Townhole and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent  
*Slope:* 1 to 3 percent  
*Landform:* Summits on structural benches

### **70083—Eldorado very gravelly silt loam, 3 to 8 percent slopes**

#### **Map Unit Setting**

*Landform:* Hills

#### **Component Description**

##### **Eldorado**

*Percent of the map unit:* 100 percent  
*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### **Typical Profile**

Ap—0 to 10 inches; very gravelly silt loam  
Bt1—10 to 31 inches; very gravelly clay loam  
2Bt2—31 to 80 inches; extremely gravelly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

### **70150—Moko-Rock outcrop complex, 50 to 100 percent slopes**

#### **Map Unit Setting**

*Landform:* Bluffs (fig. 14)

#### **Component Description**

##### **Moko**

*Percent of the map unit:* 40 percent  
*Parent material:* Gravelly material weathered from dolostone  
*Position on the landform:* Backslopes  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very shallow and shallow (4 to 20 inches)  
*Surface runoff class:* Very high  
*Percent of surface covered by rock fragments:* 0.00 to 0.10 percent (subrounded flagstones)  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### **Typical Profile**

A1—0 to 7 inches; extremely gravelly loam  
A2—7 to 18 inches; extremely gravelly silt loam  
R—18 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

##### **Rock outcrop**

*Percent of the map unit:* 35 percent

#### **Additional Components**

##### **Bendavis and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent  
*Slope:* 1 to 3 percent  
*Landform:* Backslopes

##### **Brussels and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent  
*Landform:* Footslopes



Figure 14.—An area of Moko-Rock outcrop complex, 50 to 100 percent slopes.

**71253—Hartville gravelly silt loam, 0 to 3 percent slopes**

***Map Unit Setting***

*Landform:* Strath terraces and footslopes

***Component Description***

**Hartville**

*Percent of the map unit:* 90 percent

*Position on the landform:* Treads

*Parent material:* Silty and clayey alluvium over gravelly clayey alluvium  
*Slope shape:* Linear

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* 12 to 30 inches  
*Drainage class:* Somewhat poorly drained

#### **Typical Profile**

Ap—0 to 8 inches; gravelly silt loam  
 Bt1—8 to 14 inches; gravelly silt loam  
 Bt2—14 to 31 inches; gravelly clay  
 2Bt3—31 to 80 inches; extremely gravelly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

#### **Additional Components**

##### **Soils that have a thick dark surface layer**

*Estimated percent of the map unit:* 0 to 15 percent  
*Slope:* 0 to 3 percent  
*Landform:* Treads on strath terraces

##### **71255—Britwater gravelly silt loam, 2 to 5 percent slopes**

#### **Map Unit Setting**

*Landform:* Terraces

#### **Component Description**

##### **Britwater**

*Percent of the map unit:* 85 percent  
*Position on the landform:* Treads  
*Parent material:* Alluvium derived from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Low  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### **Typical Profile**

A—0 to 10 inches; gravelly silt loam  
 Bt1—10 to 20 inches; gravelly silt loam  
 Bt2—20 to 68 inches; gravelly loam  
 Bt3—68 to 80 inches; very gravelly silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

#### **Additional Components**

##### **Waben and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent  
*Slope:* 2 to 5 percent  
*Landform:* Treads on alluvial fans

##### **Hootentown and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 0 to 3 percent  
*Landform:* Treads on stream terraces

##### **71256—Townhole-Aslinger complex, 3 to 8 percent slopes**

#### **Map Unit Setting**

*Landform:* Strath terraces

#### **Component Description**

##### **Townhole**

*Percent of the map unit:* 60 percent  
*Position on the landform:* Treads  
*Parent material:* Loamy colluvium over gravelly slope alluvium over gravelly material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* 18 to 40 inches  
*Drainage class:* Moderately well drained

#### **Typical Profile**

Ap—0 to 9 inches; gravelly silt loam

BA—9 to 17 inches; gravelly silt loam  
 Bt—17 to 27 inches; very gravelly silt loam  
 2Bt—27 to 50 inches; very gravelly silt loam  
 3Bt—50 to 80 inches; very gravelly silty clay loam

### Aslinger

*Percent of the map unit:* 40 percent  
*Position on the landform:* Treads  
*Parent material:* Loamy colluvium over loamy and clayey alluvium  
*Slope shape:*

#### Component Properties and Qualities

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* High  
*Depth to restrictive feature:* 18 to 32 inches to dense material

#### Component Hydrologic Properties

*Flooding:* None  
*Current depth to water table:* 18 to 32 inches  
*Drainage class:* Moderately well drained

#### Typical Profile

Ap—0 to 8 inches; silt loam  
 Bt—8 to 29 inches; silt loam  
 2Btx—29 to 64 inches; gravelly silty clay loam  
 3Bt—64 to 80 inches; extremely gravelly clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

## 71257—Townhole-Aslinger complex, karst, 1 to 3 percent slopes

### Map Unit Setting

*Landform:* Strath terraces

#### Component Description

### Townhole

*Percent of the map unit:* 70 percent  
*Position on the landform:* Treads  
*Parent material:* Loamy colluvium over gravelly slope alluvium over old alluvium  
*Slope shape:* Convex, linear

#### Component Properties and Qualities

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Low  
*Depth to restrictive feature:* More than 60 inches

### Component Hydrologic Properties

*Flooding:* None  
*Current depth to water table:* 18 to 40 inches  
*Drainage class:* Moderately well drained

#### Typical Profile

Ap—0 to 5 inches; silt loam  
 BA—5 to 16 inches; silt loam  
 Bw—16 to 31 inches; very gravelly silt loam  
 2Bt—31 to 48 inches; extremely gravelly clay loam  
 3Bt—48 to 70 inches; extremely gravelly sandy clay  
 4Bt—70 to 80 inches; extremely gravelly loam

### Aslinger

*Percent of the map unit:* 15 percent  
*Position on the landform:* Treads  
*Parent material:* Loamy colluvium over loamy and clayey alluvium  
*Slope shape:* Convex, linear

#### Component Properties and Qualities

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* 18 to 32 inches to dense material

#### Component Hydrologic Properties

*Flooding:* None  
*Current depth to water table:* 18 to 32 inches  
*Drainage class:* Moderately well drained

#### Typical Profile

Ap—0 to 6 inches; silt loam  
 Bt—6 to 30 inches; gravelly silt loam  
 2Btx—30 to 37 inches; extremely gravelly silt loam  
 3Bt—37 to 68 inches; extremely gravelly clay loam  
 4Bt—68 to 80 inches; extremely gravelly sandy clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

#### Additional Components

### Sowcoon and similar soils

*Estimated percent of the map unit:* 0 to 15 percent  
*Slope:* 1 to 3 percent  
*Landform:* Treads on strath terraces

### Bucklick and similar soils

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 1 to 3 percent  
*Landform:* Treads on strath terraces

**71258—Maplegrove-Carl, rarely flooded, complex, 0 to 3 percent slopes****Map Unit Setting**

*Landform:* Uplands and terraces

**Component Description****Maplegrove**

*Percent of the map unit:* 80 percent

*Position on the landform:* Footslopes

*Parent material:* Loess over silty and clayey colluvium over material weathered from cherty limestone

*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Medium

*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 13 to 27 inches

*Drainage class:* Moderately well drained

**Typical Profile**

A—0 to 11 inches; silt loam

2Bt—11 to 27 inches; silty clay

3Bt—27 to 46 inches; gravelly silty clay loam

4Bt—46 to 80 inches; very gravelly clay

**Carl**

*Percent of the map unit:* 20 percent

*Position on the landform:* Treads

*Parent material:* Clayey alluvium

*Slope shape:* Linear

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Medium

*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Frequency of flooding:* Rare

*Current depth to water table:* 0 to 18 inches

*Drainage class:* Poorly drained

**Typical Profile**

A—0 to 13 inches; silty clay loam

2Bt—13 to 27 inches; silty clay

2Bssg—27 to 68 inches; silty clay

3Btg—68 to 80 inches; very gravelly clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional

information is provided in the tables described under the heading "Soil Properties."

**71752—Bearthicket silt loam, 0 to 3 percent slopes, occasionally flooded****Map Unit Setting**

*Landform:* Flood-plain steps

**Component Description****Bearthicket**

*Percent of the map unit:* 95 percent

*Parent material:* Silty alluvium over gravelly alluvium

*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Very low

*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Frequency of flooding:* Occasional

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

**Typical Profile**

Ap—0 to 11 inches; silt loam

BA—11 to 19 inches; silt loam

Bt—19 to 67 inches; silt loam

2Bt—67 to 80 inches; extremely gravelly loam

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

**Additional Components****Pinerun and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 1 to 3 percent

*Landform:* Flood-plain steps

**71753—Cedargap, frequently flooded-Pinerun, occasionally flooded, complex, 0 to 3 percent slopes****Map Unit Setting**

*Landform:* Flood-plain steps

**Component Description****Cedargap**

*Percent of the map unit:* 65 percent

*Parent material:* Gravelly alluvium

*Slope shape:* Linear

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Very low

*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Frequency of flooding:* Frequent

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

#### **Typical Profile**

A—0 to 30 inches; extremely gravelly silty clay loam

C—30 to 80 inches; extremely gravelly clay loam

#### **Pinerun**

*Percent of the map unit:* 25 percent

*Parent material:* Gravelly alluvium

*Slope shape:* Linear

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Very low

*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Frequency of flooding:* Occasional

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

#### **Typical Profile**

Ap—0 to 9 inches; silt loam

Bt1—9 to 17 inches; gravelly silt loam

Bt2—17 to 57 inches; extremely gravelly clay loam

Btb—57 to 80 inches; extremely gravelly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

#### **Additional Components**

##### **Gladden and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 0 to 3 percent

*Landform:* Flood-plain steps

##### **Woolly and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 0 to 3 percent

*Landform:* Flood-plain steps

### **71754—Waben-Cedargap, occasionally flooded, complex, 0 to 5 percent slopes**

#### **Map Unit Setting**

*Landform:* Fan terraces

#### **Component Description**

##### **Waben**

*Percent of the map unit:* 45 percent

*Position on the landform:* Treads

*Parent material:* Gravelly alluvium or colluvium derived from cherty limestone

*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Very low

*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

#### **Typical Profile**

Ap—0 to 9 inches; extremely gravelly silt loam

E—9 to 24 inches; extremely gravelly silt loam

Bt—24 to 80 inches; extremely gravelly silt loam

##### **Cedargap**

*Percent of the map unit:* 40 percent

*Position on the landform:* Flood-plain steps

*Parent material:* Gravelly alluvium

*Slope shape:* Linear

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Low

*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Frequency of flooding:* Occasional

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

#### **Typical Profile**

A—0 to 34 inches; extremely gravelly silty clay loam

C—34 to 80 inches; extremely gravelly silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional

information is provided in the tables described under the heading "Soil Properties."

### ***Additional Components***

#### **Stream channels**

*Estimated percent of the map unit: 0 to 10 percent*

#### **Boskydell and similar soils**

*Estimated percent of the map unit: 0 to 10 percent*

*Slope: 3 to 5 percent*

*Landform: Footslopes*

#### **Britwater and similar soils**

*Estimated percent of the map unit: 0 to 10 percent*

*Slope: 1 to 3 percent*

*Landform: Treads on terraces*

#### **71755—Cedargap, frequently flooded-Gladden, occasionally flooded, complex, 0 to 3 percent slopes**

##### ***Map Unit Setting***

*Landform: Flood-plain steps (fig. 15)*



Figure 15.—Pasture in an area of Cedargap, frequently flooded-Gladden, occasionally flooded, complex, 0 to 3 percent slopes.

**Component Description****Cedargap**

*Percent of the map unit:* 50 percent

*Parent material:* Gravelly alluvium

*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Very low

*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Frequency of flooding:* Frequent

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

**Typical Profile**

A—0 to 26 inches; extremely gravelly loam

C—26 to 40 inches; extremely gravelly loam

2C—40 to 80 inches; extremely gravelly loamy coarse sand

**Gladden**

*Percent of the map unit:* 40 percent

*Parent material:* Loamy alluvium

*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Very low

*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Frequency of flooding:* Occasional

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

**Typical Profile**

Ap—0 to 8 inches; loam

Bw—8 to 58 inches; loam

2C—58 to 80 inches; extremely gravelly coarse sand

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

**Additional Components****Racket and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent

*Slope:* 0 to 3 percent

*Landform:* Flood-plain steps

**73116—Pomme silt loam, 2 to 5 percent slopes****Map Unit Setting**

*Landform:* Strath terraces

**Component Description****Pomme**

*Percent of the map unit:* 85 percent

*Position on the landform:* Treads

*Parent material:* Loamy colluvium over gravelly colluvium

*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Very low

*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

**Typical Profile**

Ap—0 to 12 inches; silt loam

Bt1—12 to 33 inches; silt loam

2Bt2—33 to 80 inches; gravelly silty clay loam

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

**Additional Components****Soils that are 20 to 40 inches deep to bedrock**

*Estimated percent of the map unit:* 0 to 20 percent

*Slope:* 2 to 5 percent

*Landform:* Risers on strath terraces

**Somewhat poorly drained soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 2 to 5 percent

*Landform:* Treads on strath terraces

**73120—Rueter-Gasconade-Rock outcrop complex, 35 to 60 percent slopes****Map Unit Setting**

*Landform:* Hillsides

### **Component Description**

#### **Rueter**

*Percent of the map unit:* 40 percent  
*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Somewhat excessively drained

#### **Typical Profile**

A—0 to 4 inches; extremely gravelly silt loam  
 E—4 to 11 inches; extremely gravelly silt loam  
 Bt—11 to 44 inches; very gravelly silt loam  
 2Bt—44 to 60 inches; very gravelly silty clay

#### **Gasconade**

*Percent of the map unit:* 35 percent  
*Position on the landform:* Backslopes  
*Parent material:* Clayey material weathered from dolostone  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very shallow and shallow (4 to 20 inches)  
*Surface runoff class:* Very high  
*Percent of surface covered by rock fragments:* 0.00 to 0.01 percent (subrounded flagstones)  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Somewhat excessively drained

#### **Typical Profile**

A1—0 to 6 inches; gravelly clay loam  
 A2—6 to 12 inches; very flaggy clay loam  
 R—12 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

#### **Rock outcrop**

*Percent of the map unit:* 15 percent

### **Additional Components**

#### **Boskydell and similar soils**

*Estimated percent of the map unit:* 0 to 20 percent  
*Slope:* 35 to 60 percent  
*Landform:* Footslopes on hillsides

### **73349—Boskydell very gravelly silty clay loam, 8 to 20 percent slopes**

#### **Map Unit Setting**

*Landform:* Hillsides

### **Component Description**

#### **Boskydell**

*Percent of the map unit:* 80 percent  
*Position on the landform:* Footslopes  
*Parent material:* Gravelly colluvium derived from cherty limestone over clayey material weathered from shale  
*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Deep (60 to 80 inches)  
*Surface runoff class:* Very high  
*Depth to restrictive feature:* 60 to 80 inches to bedrock (paralithic)

#### **Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* 16 to 40 inches  
*Drainage class:* Moderately well drained

#### **Typical Profile**

Ap—0 to 6 inches; very gravelly silty clay loam  
 Bt—6 to 16 inches; extremely gravelly clay  
 2Bt—16 to 69 inches; very gravelly silty clay  
 2Cr—69 to 80 inches; weathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

### **Additional Components**

#### **Arnica and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent  
*Slope:* 8 to 15 percent  
*Landform:* Footslopes

**Gobbler and similar soils***Estimated percent of the map unit: 0 to 10 percent**Slope: 8 to 20 percent**Landform: Backslopes**Position on the landform: Shoulders**Parent material: Gravelly colluvium derived from cherty limestone over clayey material weathered from dolostone**Slope shape: Convex, linear***73350—Clinkenbeard-Gobbler complex, 3 to 8 percent slopes*****Map Unit Setting****Landform: Structural benches (fig. 16)****Component Description*****Clinkenbeard***Percent of the map unit: 50 percent***Component Properties and Qualities***Depth class: Moderately deep (20 to 40 inches)**Surface runoff class: High**Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)***Component Hydrologic Properties***Flooding: None**Current depth to water table: More than 6 feet**Drainage class: Well drained*

Figure 16.—A typical area of Clinkenbeard-Gobbler complex, 3 to 8 percent slopes.

**Typical Profile**

Ap—0 to 4 inches; very flaggy loam  
 BA—4 to 13 inches; extremely flaggy loam  
 2Bt—13 to 33 inches; extremely channery clay  
 2R—33 to 80 inches; bedrock

**Gobbler**

*Percent of the map unit:* 35 percent  
*Position on the landform:* Summits  
*Parent material:* Gravelly colluvium over gravelly material weathered from limestone and dolostone  
*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Deep (40 to 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)

**Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

**Typical Profile**

Ap—0 to 7 inches; gravelly silt loam  
 Bt1—7 to 16 inches; very gravelly silt loam  
 2Bt2—16 to 38 inches; extremely gravelly clay loam  
 2Bt3—38 to 43 inches; gravelly clay  
 2C—43 to 50 inches; extremely cobbly silty clay loam  
 2R—50 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

**Additional Components****Gasconade and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent  
*Slope:* 5 to 8 percent  
*Landform:* Backslopes on structural benches

**Pembroke and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 3 to 5 percent  
*Landform:* Summits on structural benches

**73351—Sonsac-Rueter complex, 15 to 35 percent slopes, rocky****Map Unit Setting**

*Landform:* Hillsides

**Component Description****Sonsac**

*Percent of the map unit:* 60 percent  
*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Moderately deep (20 to 40 inches)  
*Surface runoff class:* Very high  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

**Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

**Typical Profile**

Ap—0 to 7 inches; extremely gravelly silt loam  
 BA—7 to 15 inches; extremely gravelly silt loam  
 2Bt—15 to 28 inches; extremely flaggy silty clay  
 2R—28 to 80 inches; unweathered bedrock

**Rueter**

*Percent of the map unit:* 39 percent  
*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Medium  
*Depth to restrictive feature:* More than 60 inches

**Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Somewhat excessively drained

**Typical Profile**

A—0 to 6 inches; very gravelly silt loam  
 BE—6 to 13 inches; very gravelly silt loam  
 Bt—13 to 32 inches; extremely gravelly silt loam  
 2Bt—32 to 80 inches; extremely gravelly clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

### **Additional Components**

#### **Rock outcrop**

*Estimated percent of the map unit:* 0 to 3 percent

### **73352—Jollymill-Bendavis complex, 3 to 15 percent slopes**

#### **Map Unit Setting**

*Landform:* Ridges

#### **Component Description**

##### **Jollymill**

*Percent of the map unit:* 60 percent

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium over slope alluvium over material weathered from cherty limestone

*Slope shape:* Convex

#### **Component Properties and Qualities**

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

*Surface runoff class:* Medium

*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 18 to 40 inches

*Drainage class:* Moderately well drained

#### **Typical Profile**

A—0 to 4 inches; very gravelly silt loam

E—4 to 13 inches; gravelly silt loam

Bt1—13 to 27 inches; extremely gravelly silt loam

2Bt2—27 to 41 inches; clay

3R—41 to 80 inches; unweathered bedrock

##### **Bendavis**

*Percent of the map unit:* 25 percent

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium

*Slope shape:* Convex

#### **Component Properties and Qualities**

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

*Surface runoff class:* Very high

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 18 to 36 inches

*Drainage class:* Moderately well drained

### **Typical Profile**

A—0 to 4 inches; extremely gravelly silt loam

E—4 to 10 inches; extremely gravelly silt loam

Bt—10 to 23 inches; extremely gravelly silt loam

2Bt—23 to 33 inches; extremely gravelly silt loam

3R—33 to 80 inches; bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

### **Additional Components**

#### **Noark and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent

*Slope:* 3 to 15 percent

*Landform:* Saddles on ridges

#### **Crackerneck and similar soils**

*Estimated percent of the map unit:* 0 to 15 percent

*Slope:* 3 to 15 percent

*Landform:* Summits on ridges

### **73353—Hailey-Sonsac complex, 35 to 70 percent slopes, very rocky**

#### **Map Unit Setting**

*Landform:* Hillsides

#### **Component Description**

##### **Hailey**

*Percent of the map unit:* 40 percent

*Position on the landform:* Backslopes

*Parent material:* Gravelly colluvium derived from cherty limestone over gravelly material weathered from cherty limestone

*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Medium

*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet

*Drainage class:* Excessively drained

#### **Typical Profile**

A—0 to 10 inches; extremely gravelly silt loam

Bw—10 to 45 inches; very gravelly silt loam

2Bw—45 to 66 inches; extremely cobbly sandy loam

3Bt—66 to 80 inches; very cobbly silty clay loam

**Sonsac**

*Percent of the map unit:* 40 percent  
*Position on the landform:* Backslopes  
*Parent material:* Gravelly colluvium over material weathered from cherty limestone  
*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Moderately deep (20 to 40 inches)  
*Surface runoff class:* High  
*Percent of surface covered by rock fragments:* 0.00 to 0.01 percent (subrounded stones)  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

**Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

**Typical Profile**

A—0 to 2 inches; extremely gravelly silt loam  
 BA—2 to 11 inches; extremely cobbly silt loam  
 Bt—11 to 16 inches; extremely cobbly silt loam  
 2Bt—16 to 26 inches; extremely stony silty clay  
 2R—26 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

**Additional Components****Moko and similar soils**

*Estimated percent of the map unit:* 5 to 15 percent  
*Slope:* 35 to 60 percent  
*Landform:* Backslopes on hillsides

**Rock outcrop**

*Estimated percent of the map unit:* 0 to 10 percent

**Gepp and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 35 to 60 percent  
*Landform:* Backslopes on hillsides

**73355—Moko-Blueye-Rock outcrop complex, 8 to 15 percent slopes****Map Unit Setting**

*Landform:* Structural benches (fig. 17)

**Component Description****Moko**

*Percent of the map unit:* 75 percent  
*Position on the landform:* Shoulders  
*Parent material:* Loamy material weathered from dolostone and/or loamy material weathered from cherty limestone  
*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Very shallow and shallow (4 to 20 inches)  
*Surface runoff class:* Very high  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)

**Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

**Typical Profile**

A—0 to 11 inches; extremely gravelly clay loam  
 R—11 to 80 inches; unweathered bedrock

**Blueye**

*Percent of the map unit:* 15 percent  
*Position on the landform:* Shoulders  
*Parent material:* Gravelly colluvium over clayey material weathered from limestone and dolostone  
*Slope shape:* Convex

**Component Properties and Qualities**

*Depth class:* Moderately deep (20 to 40 inches)  
*Surface runoff class:* Very high  
*Percent of surface covered by rock fragments:* 0.01 to 0.10 percent (chert stones)  
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

**Component Hydrologic Properties**

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

**Typical Profile**

A—0 to 7 inches; gravelly loam  
 AB—7 to 10 inches; very gravelly clay loam  
 2Bt—10 to 25 inches; clay  
 2R—25 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional



Figure 17.—Bob's Knob, near Jane, Missouri. This landscape feature is an example of a monadnock, which is a rocky mass that has resisted erosion and that stands isolated on a plain.

information is provided in the tables described under the heading "Soil Properties."

#### **Rock outcrop**

*Percent of the map unit:* 10 percent

### **73356—Moko-Rock outcrop complex, 15 to 50 percent slopes**

#### ***Map Unit Setting***

*Landform:* Hillsides

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

##### **Moko**

*Percent of the map unit:* 65 percent

*Parent material:* Loamy material weathered from dolostone and/or loamy material weathered from cherty limestone

*Slope shape:* Convex, linear

#### **Component Properties and Qualities**

*Depth class:* Very shallow and shallow (4 to 20 inches)

*Surface runoff class:* Very high

*Percent of surface covered by rock fragments:* 0.00 to 0.01 percent (subrounded flagstones)

*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

#### **Typical Profile**

A—0 to 10 inches; extremely channery loam

R—10 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

#### **Rock outcrop**

*Percent of the map unit:* 25 percent

*Position on the landform:* Backslopes

### **Additional Components**

#### **Brussels and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 15 to 35 percent

*Landform:* Footslopes on hillsides

#### **Ocie and similar soils**

*Percent of the map unit:* 0 to 10 percent

*Slope:* 15 to 50 percent

*Landform:* Backslopes on hillsides

### **73357—Moko-Boskydell-Rock outcrop complex, 35 to 100 percent slopes**

#### **Map Unit Setting**

*Landform:* Bluffs

#### **Component Description**

##### **Moko**

*Percent of the map unit:* 40 percent

*Position on the landform:* Backslopes

*Parent material:* Loamy material weathered from dolostone and/or loamy material weathered from cherty limestone

*Slope shape:* Convex

#### **Component Properties and Qualities**

*Depth class:* Very shallow and shallow (4 to 20 inches)

*Surface runoff class:* Very high

*Percent of surface covered by rock fragments:* 0.01 to 0.10 percent (subrounded flagstones)

*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet

*Drainage class:* Well drained

#### **Typical Profile**

A—0 to 8 inches; very channery clay loam

R—8 to 80 inches; unweathered bedrock

##### **Boskydell**

*Percent of the map unit:* 30 percent

*Position on the landform:* Footslopes

*Parent material:* Gravelly colluvium derived from cherty limestone over clayey material weathered from shale

*Slope shape:* Convex

### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Very high

*Depth to restrictive feature:* 60 to 80 inches to bedrock (paralithic)

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* 13 to 40 inches

*Drainage class:* Moderately well drained

#### **Typical Profile**

A—0 to 5 inches; very channery silty clay loam

Bt—5 to 64 inches; very channery silty clay

2Cr—64 to 80 inches; extremely channery silty clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

##### **Rock outcrop**

*Percent of the map unit:* 25 percent

### **Additional Components**

#### **Brussels and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 35 to 50 percent

*Landform:* Footslopes on hillsides

### **73358—Eldorado-Moko complex, 3 to 8 percent slopes**

#### **Map Unit Setting**

*Landform:* Structural benches

#### **Component Description**

##### **Eldorado**

*Percent of the map unit:* 60 percent

*Position on the landform:* Interfluves

*Parent material:* Gravelly colluvium over material weathered from cherty limestone

*Slope shape:* Convex, linear

#### **Component Properties and Qualities**

*Depth class:* Very deep (more than 60 inches)

*Surface runoff class:* Medium

*Depth to restrictive feature:* More than 60 inches

#### **Component Hydrologic Properties**

*Flooding:* None

*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### Typical Profile

Ap—0 to 10 inches; very gravelly silt loam  
 Bt1—10 to 31 inches; very gravelly clay loam  
 2Bt2—31 to 65 inches; extremely gravelly clay  
 3Bt3—65 to 80 inches; gravelly clay

#### Moko

*Percent of the map unit:* 25 percent  
*Position on the landform:* Interfluves  
*Parent material:* Loamy material weathered from dolostone  
*Slope shape:* Convex, linear

#### Component Properties and Qualities

*Depth class:* Very shallow and shallow (4 to 20 inches)  
*Surface runoff class:* Very high  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)

#### Component Hydrologic Properties

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### Typical Profile

Ap—0 to 8 inches; very gravelly loam  
 A—8 to 18 inches; extremely channery silt loam  
 R—18 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

#### Additional Components

##### Alred and similar soils

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 3 to 8 percent  
*Landform:* Summits on structural benches

##### Wanda and similar soils

*Estimated percent of the map unit:* 0 to 10 percent  
*Slope:* 3 to 8 percent  
*Landform:* Summits on structural benches

##### Gepp and similar soils

*Percent of the map unit:* 0 to 10 percent  
*Slope:* 3 to 8 percent  
*Landform:* Summits on structural benches

### 73359—Bona-Moko complex, 8 to 15 percent slopes, very rocky

#### Map Unit Setting

*Landform:* Structural benches

#### Component Description

##### Bona

*Percent of the map unit:* 45 percent  
*Position on the landform:* Summits  
*Parent material:* Gravelly colluvium over clayey material weathered from cherty limestone  
*Slope shape:* Convex, linear

#### Component Properties and Qualities

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* High  
*Depth to restrictive feature:* 60 to 80 inches to bedrock (lithic)

#### Component Hydrologic Properties

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### Typical Profile

Ap—0 to 11 inches; extremely gravelly silt loam  
 Bt—11 to 19 inches; extremely gravelly loam  
 2Bt—19 to 35 inches; very gravelly clay  
 3Bt—35 to 65 inches; clay  
 3R—65 to 80 inches; unweathered bedrock

##### Moko

*Percent of the map unit:* 35 percent  
*Position on the landform:* Summits  
*Parent material:* Loamy material weathered from dolostone  
*Slope shape:* Convex, linear

#### Component Properties and Qualities

*Depth class:* Very shallow and shallow (4 to 20 inches)  
*Surface runoff class:* Very high  
*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)

#### Component Hydrologic Properties

*Flooding:* None  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

#### Typical Profile

Ap—0 to 8 inches; very gravelly loam

A—8 to 18 inches; extremely channery silt loam  
 R—18 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

### ***Additional Components***

#### **Gatewood and similar soils**

*Estimated percent of the map unit:* 5 to 15 percent

*Slope:* 8 to 15 percent

*Landform:* Backslopes on structural benches

#### **Pomme and similar soils**

*Estimated percent of the map unit:* 0 to 10 percent

*Slope:* 8 to 15 percent

*Landform:* Backslopes on structural benches

#### **Rock outcrop**

*Estimated percent of the map unit:* 0 to 10 percent

### **74640—Hootentown silt loam, 0 to 3 percent slopes, rarely flooded**

#### ***Map Unit Setting***

*Landform:* Stream terraces in river valleys (fig. 18)

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

##### **Hootentown**

*Percent of the map unit:* 100 percent

*Position on the landform:* Treads

*Parent material:* Silty alluvium

*Slope shape:* Linear



**Figure 18.—Hayland in an area of Hootentown silt loam, 0 to 3 percent slopes, rarely flooded.**

### Component Properties and Qualities

*Depth class:* Very deep (more than 60 inches)  
*Surface runoff class:* Low  
*Depth to restrictive feature:* More than 60 inches

### Component Hydrologic Properties

*Frequency of flooding:* Rare  
*Current depth to water table:* More than 6 feet  
*Drainage class:* Well drained

### Typical Profile

Ap—0 to 5 inches; silt loam  
 BA—5 to 10 inches; silt loam

Bt1—10 to 32 inches; silt loam

Bt2—32 to 80 inches; silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

### 99000—Pits, quarries

- This map unit consists of areas that are being used or were formerly used for quarrying. The map unit is generally about 95 percent quarry pits and 0 to 5



Figure 19.—A gravel bar provides recreational access in this area of Water-Riverwash complex.

percent stockpiles of processed stone, overburden spoil, equipment areas, and transport roads. The composition of the soils in areas that are capable of supporting vegetation is quite variable. The vegetation consists primarily of trees, annual weeds, and perennial grasses. Because of the variability of this map unit, onsite investigation is needed to determine the suitability for any proposed use.

### **99001—Water**

- This map unit consists mainly of naturally occurring basins of surface water, such as perennial rivers and creeks. It also includes manmade lakes and ponds that are larger than 5 acres.

### **99003—Miscellaneous water**

- This map unit consists of community sewage lagoons.

### **99007—Dam**

- This map unit consists of earthen structures that hold larger bodies of water.

### **99016—Water-Riverwash complex**

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

#### **Water**

*Percent of the map unit:* 60 percent

- This component consists of naturally occurring basins of surface water, such as perennial rivers and streams.

#### **Riverwash**

*Percent of the map unit:* 40 percent

- This component consists of gravel bars and other areas in river and stream channels (fig. 19). The areas are reshaped by the stream flow. Many areas support a sparse cover of willows and grapevines.



# 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 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. 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 land 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 purposes.

## 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

Lynn Jenkins, team leader, Natural Resources Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. Prime farmland is

described, the estimated yields of the main crops and pasture plants are listed, and the system of land capability classification used by the Natural Resources Conservation Service is explained.

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.

In 1997, about 156,000 acres in McDonald County was used for crops and pasture (fig. 20). In 2000, about 45,000 acres was harvested cropland, including 42,000 acres of hay and 2,700 acres of row crops, small grain crops, and summer annuals (Missouri Department of Agriculture and USDA, 2000). In addition, about 37,000 acres was used as pastured woodland.

Most cleared land in the county is used for pasture or hay or for the production of grass seed. The acreage used for row crops, small grain, and summer annuals is small. Soils suited to cultivated crops are on bottom land, on terraces, and in gently and moderately sloping areas in the uplands.

Most soils in the county are not suited to intense use for cultivated crops. Slope, depth to bedrock, a high content of rock fragments, surface stones, or combinations of these are the main limitations.

The hazard of erosion is the main management concern in areas of Britwater, Viburnum, Pomme, Waben, Jollymill, and Crackerneck soils used for cultivated crops. Conservation farming practices, such as farming on the contour, establishing terraces and grassed waterways, leaving crop residue on the surface throughout the fall and winter, and using crop rotations that include several years of legumes or grasses, can help to protect these soils from erosion.



**Figure 20.—Cattle and goats grazing in an area of Waben-Cedargap, occasionally flooded, complex, 0 to 5 percent slopes. Because of its productive pastureland, McDonald County ranks among the highest in the State in livestock receipts.**

Soil fertility is naturally low in most of the soils in McDonald County. All of the soils need additional plant food for maximum production. Nearly all of the soils in the county, particularly the upland soils, are naturally acid in the upper part of the root zone. In areas of these soils, applications of ground limestone or ground dolostone are needed to raise the pH and calcium and magnesium levels for good plant growth. On all soils, applications of lime and fertilizer should be based on the results of soil tests, on crop needs, and on expected yields. The use of animal manure, such as litter, can improve soil fertility and tilth. In addition to soil tests, testing for the nutrient content of manures is needed to determine proper application rates.

Soil tilth is an important factor in seedbed preparation, the germination of seeds, and the infiltration of water into the soil. Soils that have good tilth are granular and porous. Many of the soils in McDonald County have a surface layer of silt loam that is low or moderately low in organic matter content. If these soils are frequently cultivated, the soil structure becomes weak or is destroyed. As a result, a crust may form on the surface during intense rainfall. The crust reduces the rate of water infiltration and increases the runoff rate. Returning crop residue to the soil and adding green manure and animal manure improve soil structure, thereby minimizing crusting and increasing the infiltration rate.

Pasture and hay forage crops that are suited to the soils and climate of McDonald County include several kinds of cool-season grasses, legumes, and warm-season grasses. Alfalfa, red clover, and lespedeza are the legumes commonly grown for hay or pasture. Very deep, well drained soils that have a high available water capacity and are high in calcium and magnesium or are adequately limed, such as Hootentown, Bearthicket, and Pembroke soils, are well suited to alfalfa for hay production. Bona, Britwater, Cedargap, Clarksville, Crackerneck, Eldorado, Gladden, Goss, Noark, Pomme, Rueter, Townhole, and Waben soils are moderately suited to alfalfa for hay production (fig. 21). Soils that have a perched water table, such as Viburnum, Hartville, and Sowcoon soils, or a limited depth to bedrock, such as Clinkenbeard and Sonsac soils, are better suited to clovers for hay or pasture production. If adequately limed and fertilized, most of the soils suited to pasture and hay production can support red clover and lespedeza or several of the other legumes.

Tall fescue, orchardgrass, and some other cool-season grasses are suited to many of the soils in the county. These grasses grow best in the spring, early summer, and fall. If additional midsummer pasture or hay is needed, warm-season grasses can be grown.

Very deep, well drained soils that have a high available water capacity, such as Hootentown and Pembroke soils, are well suited to warm-season grasses, including Caucasian bluestem, big bluestem, indiagrass, bermudagrass, and switchgrass. Soils that have a low to moderate available water capacity, such as Bona, Britwater, Townhole, Clarksville, Crackerneck, Eldorado, Gladden, Gobbler, Goss, Viburnum, Noark, Clinkenbeard, Pomme, Rueter, Sonsac, Sowcoon, Cedargap, and Waben soils, are moderately suited to most warm-season grasses. Viburnum, Hartville, and Sowcoon soils are moderately well suited to switchgrass. Warm-season grasses grow best in late spring, summer, and early fall.

The very deep Hootentown, Bearthicket, and Pembroke soils are well suited to cultivated crops, such as corn, soybeans, grain sorghum, summer annuals, and small grain. Britwater, Crackerneck, Townhole, Viburnum, Pomme, and Jollymill soils are only moderately suited to cultivated crops because of a restricted rooting depth or another property that reduces the available water capacity. Britwater, Crackerneck, Viburnum, Pomme, Jollymill, and Bendavis soils are well suited to small grain crops.

Small acreages are used for orchards or vegetable gardens. Many families can and freeze home-grown fruits and vegetables for home use.

## Prime Farmland

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

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and



Figure 21.—Hay bales in an area of Cedargap, frequently flooded-Gladden, occasionally flooded, complex, 0 to 3 percent slopes.

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 14,575 acres in the survey area, or about 4 percent of the total acreage, meets the soil requirements for prime farmland.

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. Some of the soil qualities and properties that

affect use and management are described under the heading “Detailed Soil Map Units.”

70067—Pembroke silt loam, karst, 1 to 3 percent slopes, ponded

70082—Paintbrush-Friendly complex, 1 to 3 percent slopes

71253—Hartville gravelly silt loam, 0 to 3 percent slopes

71255—Britwater gravelly silt loam, 2 to 5 percent slopes

71258—Maplegrove-Carl, rarely flooded, complex, 0 to 3 percent slopes (where drained)

71752—Bearthicket silt loam, 0 to 3 percent slopes, occasionally flooded

73116—Pomme silt loam, 2 to 5 percent slopes

74640—Hootentown silt loam, 0 to 3 percent slopes, rarely flooded

### 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. The yields for the

main pasture and hay crops are given in table 6. In any given year, yields may be higher or lower than those indicated in the tables because of variations in rainfall and other climatic factors. Table 5 also shows the land capability classification of the soils in the survey area, and table 6 includes the pasture and hayland suitability groups assigned to the soils.

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

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

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in tables 5 and 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or the 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 forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

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

Class 1 soils have slight limitations that restrict their use.

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

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

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

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

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

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

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

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

The capability classification of map units in this survey area is given in table 5.

## Pasture and Hayland Suitability Groups

The soils in McDonald 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 WtP—Wet Pan.** The species that are tolerant of wetness grow best. 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 the main concern. 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 SyO—Sandy Overflow.** The soils in this group tend to be droughty because they are excessively drained, but they are also subject to flooding. Plants should be selected accordingly. A seedbed can be easily prepared. The flooding and the droughtiness should be considered when a grazing system is designed. Because the soils are subject to flooding and droughtiness at different times, a flexible grazing system is needed.

**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.

## Forestland Productivity and Management

Douglas C. Wallace, forester, Natural Resources Conservation Service, helped prepare this section.

Approximately 170,463 acres in McDonald County, or about 49 percent of the total acreage, is forested (Geissman and others, 1986). Woodland tracts in the county are primarily small or medium private holdings of less than 300 acres and are essentially unmanaged stands of sawtimber or poletimber (Ostrom, 1991). On the flood plains, the forests are restricted to long narrow bands bordering streams and rivers. Tree species and growth rates in the county vary, depending on site conditions, soil types, and past management.

The soil serves as a reservoir for moisture, provides an anchor for roots, and supplies essential plant nutrients. Soil properties that affect the growth of trees include reaction (pH), fertility, drainage, texture, structure, and depth. Soils that do not have extremes of these properties and have an effective rooting depth of more than 40 inches provide the best medium for tree growth.

Site characteristics that affect tree growth include aspect and topographic position. These site characteristics influence the amount of available

sunlight, air drainage, soil temperature, soil moisture, and relative humidity. Typically, north and east aspects and the lower slope positions, which are cooler and have better moisture conditions than other sites, are the best upland sites for tree growth.

Management activities can influence woodland productivity and should be aimed at eliminating factors that cause tree stress. Generally, these activities include thinning overstocked young stands; harvesting older, mature trees; eliminating destructive fire; and preventing grazing. Fire and grazing have very negative impacts on forest growth and quality. Although frequent forest fires are no longer a problem in the county, a considerable acreage of woodland is still subject to grazing. Grazing destroys the leaf layer on the surface, compacts the soil, and destroys or damages tree seedlings. Woodland sites that are protected from grazing and fire have the highest potential for optimum timber production and tree growth.

Rueter, Crackerneck, Clarksville, Jollymill, and Goss soils are the major forested upland soils in McDonald County (fig. 22). Post oak, blackjack oak, hickory, and black oak forest types are typical on these soils. Other significant forest types include white oak, oak-pine, and eastern redcedar-mixed hardwood (Ostrom, 1991).

Along the major watercourses, Cedargap, Bearthicket, Pinerun, and Gladden soils support bottom-land hardwoods adapted to flooded soil conditions. Many of these sites have been cleared for pasture and some row crop production. The uncleared wooded areas typically support silver maple, hackberry, American elm, sycamore, cottonwood, and Shumard oak. Bur oak, green ash, black walnut, and shortleaf pine grow on the bottom land along the smaller streams and on the higher terraces of the major streams. Good forest growth is likely on these sites.

Soils in the uplands, such as Paintbrush and Friendly soils, formed under open forest vegetation with mixed prairie understory. The successful reestablishment of savannas on these soils may require extra care and maintenance.

Special-use tree plantings are possible on many soils in McDonald County. Christmas tree plantings can be established on any soil that is not poorly drained or very poorly drained. Suitable species of trees are Scotch pine, Virginia pine, red pine, and white pine. Nut trees, such as black walnut and pecan, are best suited to deep, medium textured, moderately well drained and well drained soils, such as Bearthicket and Hootentown soils. Other soils also are suited but may be less productive. Planting fast-



**Figure 22.**—Timber in an area of Rueter-Gasconade-Rock outcrop complex, 35 to 60 percent slopes. McDonald County is a viable producer of hardwood timber for lumber and chip mill products.

growing trees for fuelwood is also feasible in McDonald County. The species that are most suitable for this purpose include green ash, black locust, sycamore, and silver maple.

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

## Forestland 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 50 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 through the Agency’s Web site (<http://soils.usda.gov>).

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

*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.

## Forestland Management

In tables 8a and 8b, interpretive ratings are given for various aspects of forestland management. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified aspect of forestland 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:

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 forestland 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 Web site (<http://soils.usda.gov>).

In table 8a, 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 *use of harvesting 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 harvesting 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 erosion 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 erosion 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

Douglas C. Wallace, forester, Natural Resources Conservation Service, helped prepare this section.

Living plants play an important role in supporting our life and improving its condition. If properly used and maintained, plants can help provide positive solutions to many problems in our contemporary environment. In McDonald County, windbreaks and environmental plantings can be utilized throughout the landscape for a variety of engineering, climatological, and esthetic purposes.

Windbreaks can be established successfully in many areas of McDonald County. Several specific aspects of management should be considered when farmstead and field windbreaks are planned. These include design and layout; species selection; site preparation; seedling handling; weed management; supplemental watering; and protection from diseases, insects, and animals.

Farmstead windbreaks make the farmstead area a more comfortable place, reduce energy costs, increase garden and fruit tree yields, filter dust, enhance wildlife populations, buffer noises, and raise property values (Scholten, 1988). Feedlot windbreaks can be used to protect livestock from wind and snow and can reduce odors that may be associated with concentrated areas of livestock. Windbreaks significantly reduce calf losses, make feeding operations easier, and enable livestock to maintain better weight with less feed.

Farmstead and feedlot windbreaks are generally three or more rows wide, and at least two of the rows consist of a conifer species. The windbreaks should be established on the windward side of the area to be protected and as perpendicular as possible to the prevailing winds. Well designed farmstead and feedlot windbreaks are needed throughout McDonald County, especially in the more open treeless areas and on ridgetops.

Field windbreaks or shelterbelts are designed to protect field crops and bare soil from the effects of strong winds. Field windbreaks minimize soil losses, increase crop yields, retard the spread of weeds between fields, and enhance wildlife habitat (Brandle and others, 1988). They should be carefully planned. Field boundaries, irrigation systems, associated crops, power lines, and roads should be considered when the

location of field windbreaks is determined. Windbreaks should be oriented at a right angle to the prevailing winds. The typical field windbreak system consists of a series of single rows of trees or shrubs. Field windbreaks are adaptable to various locations in McDonald County, primarily in the Cedargap-Pomme-Waben and Townhole-Paintbrush-Friendly associations, which are described under the heading "General Soil Map Units."

Environmental plantings can be used for beautification, visual screens, and control of acoustical and climatological problems around buildings and other living spaces. Care should be given to selecting plants that exhibit proper height, shape, form, color, and texture and that are compatible with the surrounding area, structures, and desired use (Robinette, 1972). Trees and shrubs can be established on most sites and soil types in McDonald County, but adequate site preparation prior to planting, control of competition from weeds after planting, and sufficient water during the growing season are necessary.

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 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 uses. 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 (fig. 23), 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



**Figure 23.—McDonald County has many scenic rivers and streams that provide numerous recreational opportunities.**

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

Travis Dinsdale, area biologist, Missouri Department of Conservation, helped prepare this section.

McDonald County is in the Elk River section of the Ozark Natural Division (Thom and Wilson, 1980). The native vegetation consisted of a mixture of upland deciduous and pine forest and a small extent of prairie (Bicknese, 1988). Currently, the vegetation in the county is about evenly split between grassland and woodland.

A large amount of woodland in the survey area has been converted to grassland since the time of the early settlers (Bicknese, 1988). Today, approximately half of the acreage in the county is considered woodland. Most of this woodland is privately owned and is in areas of the Jollymill-Sonsac-Hailey and Rueter-Goss-Jollymill associations, which are described under the heading "General Soil Map Units." The Huckleberry Ridge Conservation Area, Buffalo Hills Natural Area, and Big Sugar Creek State Park provide approximately 5,000 acres of woodland for

public use. Other public areas include Deep Ford, Town Hole, Mount Shira, and Cowskin River accesses and the Lanagan and Powell tower sites.

In 1988, the Missouri Department of Conservation identified 22 high-quality natural communities in McDonald County. The sites noted in this inventory included chert forests, limestone/shale cliffs and glades, an influent cave, and the only known natural tunnel in southwestern Missouri (Bicknese, 1988). According to the Missouri Department of Conservation's Missouri Fish and Wildlife Information System, there are 304 known fish and wildlife species in McDonald County. Typical nongame species include southern leopard frog, yellow-billed cuckoo, American kestrel, belted kingfisher, indigo bunting, wood thrush, pileated woodpecker, eastern chipmunk, central stoneroller, and three-toed box turtle. The most common game species include white-tailed deer, wood duck, raccoon, squirrel, eastern cottontail rabbit, mourning dove, smallmouth bass, and largemouth bass.

Many typical southwestern species, such as scissor-tailed flycatcher, greater roadrunner, and armadillo (fig. 24), are frequently observed in the county. Several species in the county maintain special status in terms of State and Federal rare and/or endangered species lists. Species identified or noted in the Natural Features Inventory of 1988 include the gray bat, grotto salamander, southern brook lamprey, little purple mussel, black-tailed jackrabbit, Ozark zigzag salamander, and Oklahoma salamander (Bicknese, 1988).

Many plant species in McDonald County also are listed in various sensitive/protected inventories. These species include Ozark chinkapin (*Castanea ozarkensis*), marine vine (*Cissus incisa*), soapberry (*Sapindus drummondii*), royal catchfly (*Silene regia*), Alabama lip-fern (*Cheilanthes alabamensis*), low prickly pear (*Opuntia macrorhiza*), and Ozark corn salad (*Valerianella ozarkana*). Three species recorded in the county—mock orange (*Philadelphus pubescens*), woolly lip-fern (*Cheilanthes tomentosa*), and Virginia whitlow wart (*Paronychia virginica*)—represent the only known locations of these plants in Missouri (Bicknese, 1988).

Populations of large mammals in McDonald County are similar to those in the adjoining counties. Sightings compiled from the Missouri Department of Conservation cooperative archery hunter survey in the year 2000 show that McDonald County has a higher occurrence of deer, coyote, gray fox, raccoon, and opossum as compared to the State average but lower numbers of turkey, red fox, and bobcat. The furbearer harvest for McDonald County in 2000–2001 was



**Figure 24.—The armadillo is a local species whose numbers are on the rise.**

similar to the average for neighboring counties. Species harvested included raccoon, opossum, red fox, gray fox, coyote, bobcat, mink, beaver, and muskrat.

The primary woodland game species are white-tailed deer, raccoon, and squirrel. Populations of eastern wild turkey are considered low. Numbers of these birds should increase, however, as a result of a stocking effort by the Missouri Department of Conservation in the winter of 2001. The clearing of timber and grazing by livestock have had major adverse effects on the woodland wildlife in the survey area. Allowing livestock to graze in areas of woodland can result in tree decline, increased erosion, and a reduction in wildlife habitat.

Populations of small game species, such as bobwhite quail and eastern cottontail rabbit, are low because of inadequate management of the grasslands and because of the limited amount of cropland in the county. Most of the grassland consists of overgrazed cool-season monocultures. Converting some of these cool-season pastures and haylands to warm-season grasses and adding legumes would improve the habitat for small game species in the county.

Wetland habitat is extremely scarce in McDonald County. This habitat type occurs almost exclusively as small streams and rivers in areas of the Cedargap-Pomme-Waben association. Several great blue heron rookeries are along these streams and rivers. Waterfowl species, such as bufflehead, canvasback, black duck, gadwall, snow goose, mallard, northern shoveler, blue and green-winged teal, widgeon, common merganser, and northern pintail, have been documented in the county. Except for a few Canada geese and wood ducks, all of the waterfowl in the county are considered migratory.

McDonald County has about 88 miles of perennial streams. The Elk River and Big Sugar Creek provide fishing opportunities for the general public (fig. 25). The most commonly caught fish species are largemouth bass, smallmouth bass, drum, channel catfish, white crappie, black crappie, and rock bass. Little impoundment fishing is available to the general public. Private ponds and small lakes provide approximately 590 acres of fishable waters. Typical species caught in these small impoundments are largemouth bass, channel catfish, and bluegill.

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

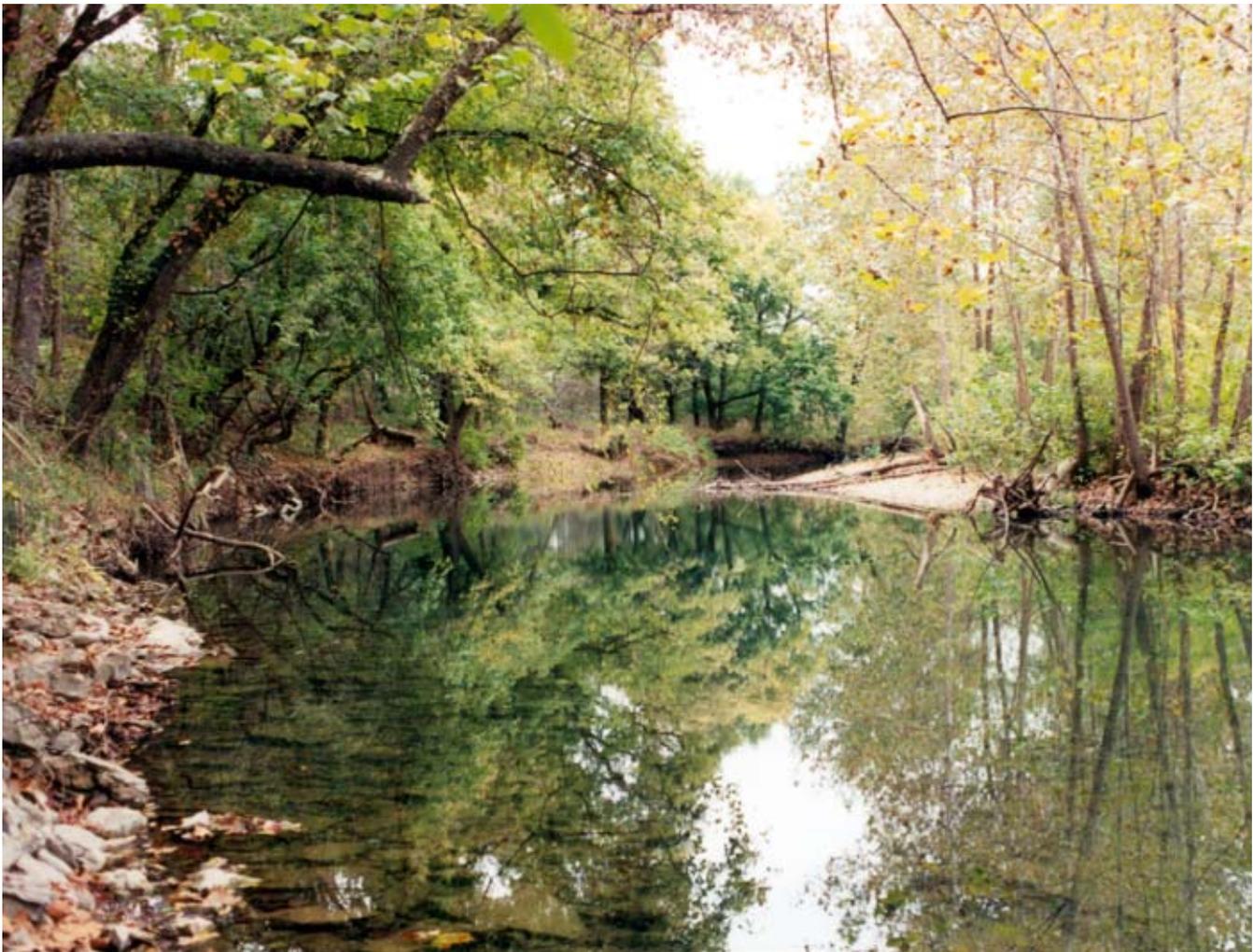


Figure 25.—Many of the creeks and streams in McDonald County provide excellent angling opportunities.

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 also are considerations. Selection should be made from a list of locally adapted species.

*Domestic grasses and legumes* are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone,

texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. 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 also are 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, areas of bottom land, marshes, or backwater areas on 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, in previously cropped areas, and in marginal areas associated with cropland and wetlands. These areas may be ponded for some period of time during the year. They 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, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

*Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil 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; 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.

For sand and gravel, the soils are rated as a *probable*, *possible*, or *improbable* source. A rating of *probable* indicates that the source material is likely to be in or below the soil. A rating of *possible* indicates that the source material may be in or below the soil

and that further investigation is warranted. A rating of *improbable* indicates that the source material is unlikely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. A numerical rating of 1.00 indicates that the soil is an improbable source. A numerical rating of less than 1.00 indicates the degree to which the soil is a possible or probable source of sand or gravel.

Other rating class terms used in this table indicate the extent to which the soils are limited by soil features that affect their use as a source for roadfill 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 for roadfill, topsoil, and shallow excavations 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 likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the 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**

Table 15 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways.

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 (fig. 26).

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



**Figure 26.—Poultry houses on a strath terrace. McDonald County leads the State in poultry production. The proper treatment of animal wastes has become an important environmental issue.**

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 erosion 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 erosion 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.

*Treatment of wastewater by slow rate process* 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 erosion 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.

*Treatment of wastewater by rapid infiltration process* 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 ground-water 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.

# 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 shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

## 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 abbreviations of 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. 27). "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50

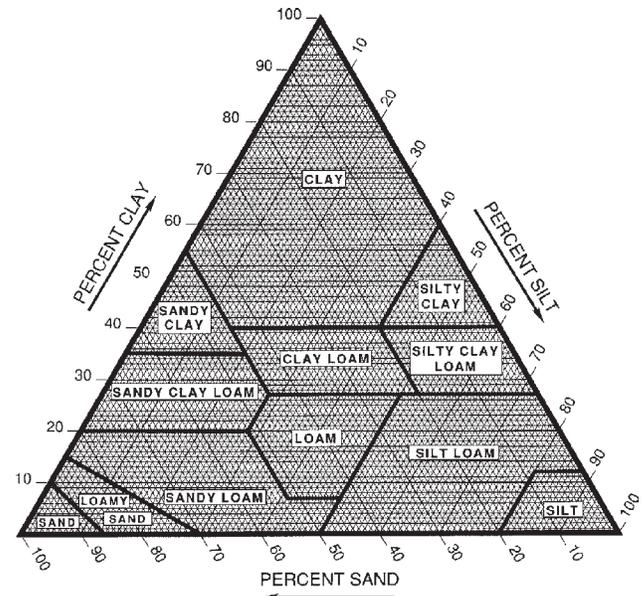


Figure 27.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

*Classification* of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to 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 Properties

Table 18 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major 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.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

*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 (Ksat). 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.

*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 (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill

erosion by water. Factor K is one of 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 Kw* indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

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

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

*Wind erodibility groups* are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the “National Soil Survey Handbook” (USDA/NRCS, National Soil Survey Handbook).

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

## Chemical Properties

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

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

*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.

*Salinity* is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

## Water Features

Table 20 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.

*Surface runoff* refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are *negligible*, *very low*, *low*, *medium*, *high*, and *very high*.

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 20 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.

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 20 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

*Flooding* is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

*Duration and frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year). Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

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 21 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal

properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the thickness and hardness 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 for frost action* is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage 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.



# 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 22 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 Ultisol.

**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 Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

**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 Paleudults (*Pale*, meaning excessive development, plus *udult*, the suborder of the Ultisols 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 Paleudults.

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy-skeletal, siliceous, semiactive, mesic Typic Paleudults.

**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.

### ***Aslinger Series***

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Strath terraces

*Position on the landform:* Treads

*Parent material:* Loamy colluvium over loamy and clayey alluvium

*Slope range:* 1 to 8 percent

*Elevation:* 1,190 feet

*Taxonomic classification:* Fine-loamy, mixed, active, mesic Fragiaquic Paleudults

### **Typical Pedon**

Aslinger silt loam, in an area of Townhole-Aslinger complex, 3 to 8 percent slopes; in tame pastureland; 625 feet west and 2,604 feet north of the southeast corner of sec. 4, T. 23 N., R. 30 W.; USGS Bethpage, Missouri, topographic quadrangle; UTM coordinates 4,067,143 meters Northing and 395,713 meters Easting, Zone 15, NAD 83:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; many very fine and fine roots; many very fine interstitial and tubular pores; 3 percent subrounded chert gravel; slightly acid; abrupt smooth boundary.

Bt1—8 to 14 inches; 55 percent dark yellowish brown (10YR 4/4) and 45 percent brown (10YR 4/3) silt loam; weak very fine and fine subangular blocky structure; friable; many very fine and fine roots; many very fine interstitial and tubular pores; very few faint dark yellowish brown (10YR 4/4) clay films on all faces of peds; few fine spherical black (N 2/0) iron-manganese concretions between peds; 5 percent subrounded chert gravel; slightly acid; clear smooth boundary.

Bt2—14 to 22 inches; yellowish brown (10YR 5/4) silt loam; weak very fine and fine subangular blocky structure; friable; common very fine and fine roots; common very fine interstitial and tubular pores; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and few faint yellowish brown (10YR 5/4) clay films on faces of peds; common fine spherical black (N 2/0) iron-manganese concretions between peds; 10 percent subrounded chert gravel; slightly acid; clear smooth boundary.

Bt3—22 to 29 inches; dark yellowish brown (10YR 4/6) gravelly silty clay loam; weak very fine and fine subangular blocky structure; friable; common very fine roots; common very fine interstitial and tubular pores; few distinct pale brown (10YR 6/3) skeletans in root channels and/or pores and few faint dark yellowish brown (10YR 4/6) clay films on faces of peds; common fine irregular black (N 2/0) iron-manganese masses between peds; 20 percent subrounded chert gravel; moderately acid; abrupt irregular boundary.

2Btx1—29 to 48 inches; 60 percent dark red (2.5YR 3/6) and 40 percent yellowish red (5YR 4/6) gravelly silty clay loam; moderate very fine and

fine subangular blocky structure; firm; common very fine roots; few very fine interstitial pores; common prominent gray (N 6/0) skeletans in root channels and/or pores and few faint brown (7.5YR 5/3) clay films on faces of peds; few fine irregular black (N 2/0) iron-manganese masses between peds; 20 percent subrounded chert gravel; very strongly acid; clear wavy boundary.

2Btx2—48 to 64 inches; 60 percent red (2.5YR 4/6) and 40 percent yellowish red (5YR 4/6) gravelly silt loam; moderate very fine and fine subangular blocky structure; firm; common very fine roots; few very fine interstitial pores; common prominent gray (N 6/0) skeletans in root channels and/or pores and few faint red (2.5YR 4/6) clay films on faces of peds; 25 percent subrounded chert gravel; very strongly acid; abrupt wavy boundary.

3Bt—64 to 80 inches; 70 percent yellowish red (5YR 4/6) and 30 percent yellowish red (5YR 5/6) extremely gravelly clay loam; weak very fine subangular blocky structure; firm; few very fine interstitial pores; few prominent gray (N 6/0) skeletans in root channels and/or pores and few faint yellowish red (5YR 4/6) clay films on faces of peds; 65 percent subangular chert gravel and 5 percent subangular chert cobbles; very strongly acid.

### **Range in Characteristics**

*Depth to the 2Btx horizon:* 20 to 36 inches

*Depth to bedrock:* 80 inches or more

*A or Ap horizon:*

Hue—10YR or 7.5YR

Value—3 to 5

Chroma—2 to 4

Texture of the fine-earth fraction—silt or silt loam

Content of rock fragments—0 to 10 percent gravel

Reaction—slightly acid to extremely acid

*AB horizon (if it occurs):*

Hue—10YR or 7.5YR

Value—4

Chroma—4 to 6

Texture of the fine-earth fraction—silt loam

Content of rock fragments—0 to 15 percent gravel

Reaction—slightly acid to very strongly acid

*E horizon (if it occurs):*

Hue—10YR or 7.5YR

Value—5 or 6

Chroma—4 to 6

Texture of the fine-earth fraction—silt or silt loam

Content of rock fragments—0 to 4 percent

Reaction—slightly acid to extremely acid

**Bt horizon:**

Hue—10YR to 5YR

Value—4 to 6

Chroma—6 to 8

Texture of the fine-earth fraction—loam, silt loam, or silty clay loam

Content of rock fragments—0 to 20 percent gravel

Reaction—slightly acid to extremely acid

**2Btx and 3Bt horizons:**

Hue—10YR to 2.5YR

Value—4 to 6

Chroma—2 to 8

Texture of the fine-earth fraction—loam, silt loam, silty clay loam, or clay loam

Content of rock fragments—15 to 65 percent gravel, 0 to 10 percent cobbles

Reaction—strongly acid or very strongly acid

***Bearthicket Series****Depth class:* Very deep*Drainage class:* Well drained*Permeability class:* Moderate*Landform:* Flood-plain steps in river valleys*Parent material:* Silty alluvium over gravelly alluvium*Slope range:* 0 to 3 percent*Elevation:* 795 feet*Taxonomic classification:* Fine-silty, mixed, active, mesic Ultic Hapludalfs***Typical Pedon***

Bearthicket silt loam, 0 to 3 percent slopes, occasionally flooded; in an area of hayland; 1,417 feet east and 1,593 feet south of the northwest corner of sec. 26, T. 22 N., R. 34 W.; USGS South West City, Missouri, topographic quadrangle; UTM coordinates 4,053,347 meters Northing and 358,767 meters Easting, Zone 15, NAD 83:

Ap—0 to 7 inches; 60 percent dark brown (10YR 3/3) and 40 percent brown (10YR 4/3) silt loam, pale brown (10YR 6/3) (crushed) dry; weak fine granular structure; firm; many very fine and fine roots throughout; common very fine and fine interstitial and tubular pores; neutral; abrupt smooth boundary.

A—7 to 11 inches; 60 percent dark brown (10YR 3/3) and 40 percent brown (10YR 4/3) silt loam, pale brown (10YR 6/3) (crushed) dry; moderate fine granular structure; friable; many very fine and fine roots throughout; many very fine interstitial and tubular pores; 5 percent subrounded chert gravel; slightly acid; abrupt smooth boundary.

BA—11 to 19 inches; 70 percent dark yellowish brown (10YR 4/4) and 30 percent dark brown (10YR 3/3) silt loam; moderate very fine and fine subangular blocky structure; friable; common very fine and fine roots throughout; many very fine interstitial and tubular pores; 3 percent subrounded chert gravel; slightly acid; clear smooth boundary.

Bt1—19 to 33 inches; dark yellowish brown (10YR 4/6) silt loam; moderate very fine and fine subangular blocky structure; friable; common very fine and fine roots throughout; many very fine interstitial and tubular pores; common distinct dark yellowish brown (10YR 3/6) clay films on faces of peds and very few prominent very dark gray (10YR 3/1) organic stains in root channels and/or pores; 1 percent subrounded chert gravel; slightly acid; clear smooth boundary.

Bt2—33 to 67 inches; dark yellowish brown (10YR 4/6) silt loam; moderate very fine and fine subangular blocky structure; firm; common very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; many distinct dark yellowish brown (10YR 3/4) clay films on faces of peds and few prominent black (10YR 2/1) organic stains in root channels and/or pores; 2 percent subrounded chert gravel; moderately acid; clear wavy boundary.

2Bt3—67 to 80 inches; dark yellowish brown (10YR 4/6) extremely gravelly loam; weak very fine and fine subangular blocky structure; firm; common very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few distinct dark yellowish brown (10YR 3/4) clay films in root channels and/or pores and very few prominent black (10YR 2/1) organic stains in root channels and/or pores; 65 percent subrounded chert gravel; moderately acid.

***Range in Characteristics****Thickness of the solum:* 40 to more than 80 inches*Depth to bedrock:* 80 inches or more***A or Ap horizon:***

Hue—10YR or 7.5YR

Value—3 or 4

Chroma—2 to 4

Texture of the fine-earth fraction—silt loam

Content of rock fragments—0 to 5 percent gravel

Reaction—strongly acid to neutral

***BA or AB horizon (if it occurs):***

Hue—10YR or 7.5YR

Value—3 or 4

Chroma—2 to 6

Texture of the fine-earth fraction—silt loam

Content of rock fragments—0 to 5 percent  
Reaction—strongly acid to neutral

*Bt horizon (upper part):*

Hue—10YR or 7.5YR  
Value—3 to 5  
Chroma—3 to 6  
Texture of the fine-earth fraction—silt loam or silty clay loam  
Content of rock fragments—0 to 5 percent  
Content of sand—8 to 15 percent fine and coarser  
Content of clay—18 to 35 percent  
Reaction—strongly acid to neutral

*Bt horizon (lower part) or 2Bt horizon:*

Hue—10YR to 2.5YR  
Value—3 to 6  
Chroma—3 to 6  
Texture of the fine-earth fraction—silt loam, silty clay loam, loam, or clay loam  
Content of sand—10 to 45 percent  
Content of rock fragments—0 to 30 percent (0 to 80 percent below a depth of 40 inches)  
Reaction—strongly acid to neutral

*BC or C horizon (if it occurs):*

Hue—10YR to 5YR  
Value—4 to 6  
Chroma—4 to 6  
Texture of the fine-earth fraction—silt loam, silty clay loam, loam, clay loam, or sandy clay loam  
Content of rock fragments—0 to 80 percent  
Reaction—very strongly acid to slightly acid

*2BC or 2C horizon (if it occurs):*

Hue—7.5YR or 10YR  
Value—4 or 5  
Chroma—4 to 6  
Texture of the fine-earth fraction—coarse sandy loam, sandy loam, or fine sandy loam; loamy sand included below a depth of 60 inches  
Content of rock fragments—0 to 10 percent  
Reaction—moderately acid to neutral

**Beemont Series**

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability class:* Slow

*Landform:* Monadnocks

*Position on the landform:* Backslopes

*Parent material:* Residuum derived from cherty materials mixed with residuum derived from shale or sandstone

*Slope range:* 5 to 20 percent

*Elevation:* 1,520 feet

*Taxonomic classification:* Very fine, smectitic, mesic Typic Hapludalfs

*Taxadjunct features:* The Beemont soils in McDonald County do not have redoximorphic concentrations or clay depletions with chroma of 2 or less within 40 inches of the mineral soil surface. Also, they are well drained.

**Typical Pedon**

Beemont cobbly fine sandy loam, 5 to 20 percent slopes, extremely stony; in woodland; 1,280 feet north and 100 feet west of the southeast corner of sec. 6, T. 21 N., R. 28 W.; USGS Seligman, Missouri, topographic quadrangle; UTM coordinates 4,046,791 meters Northing and 411,020 meters Easting, Zone 15, NAD 83:

A—0 to 4 inches; brown (10YR 4/3) cobbly fine sandy loam, pale brown (10YR 6/3) dry; weak very fine granular structure; very friable; many fine roots; 30 percent sandstone cobbles; moderately acid; clear smooth boundary.

E—4 to 10 inches; dark yellowish brown (10YR 4/4) cobbly very fine sandy loam; weak very fine granular structure; very friable; common fine roots; 30 percent sandstone cobbles; moderately acid; abrupt smooth boundary.

2Bt1—10 to 13 inches; yellowish red (5YR 4/6) clay; moderate very fine angular blocky structure; firm; few medium roots; 10 percent faint clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt2—13 to 27 inches; red (2.5YR 4/6) clay; moderate very fine angular blocky structure; firm; few medium roots; 10 percent faint clay films on faces of peds; very strongly acid; clear smooth boundary.

2Bt3—27 to 44 inches; yellowish red (5YR 4/6) clay; weak fine angular blocky structure; firm; few medium roots; 10 percent faint clay films on faces of peds; very strongly acid; clear smooth boundary.

2C—44 to 49 inches; yellowish red (5YR 5/8) channery sandy clay loam; weak very fine subangular blocky structure; firm; few fine roots; 20 percent sandstone channers; very strongly acid; abrupt wavy boundary.

2R—49 inches; sandstone.

**Range in Characteristics**

*Depth to bedrock:* 40 to 60 inches

*Content of rock fragments:* 15 to 30 percent gravel or cobbles in the A and E horizons, 0 to 15 percent gravel or cobbles in the 2Bt horizon, and 0 to 30 percent channers in the C or Cr horizon

*Other features:* Some pedons have a gravelly or very gravelly BE horizon or B/E horizon. This horizon is 2 to 6 inches thick.

*A or Ap horizon:*

Value—3 to 5

Chroma—2 or 3

Texture of the fine-earth fraction—loam or fine sandy loam

Reaction—slightly acid to very strongly acid

*E horizon:*

Value—4 to 6

Chroma—2 to 4

Texture of the fine-earth fraction—silt loam, loam, or very fine sandy loam

Reaction—moderately acid to extremely acid

*2Bt horizon:*

Hue—2.5YR to 10YR

Value—4 to 6

Chroma—3 to 8

Texture of the fine-earth fraction—silty clay or clay

Reaction—strongly acid or very strongly acid

*2C or 2Cr horizon:*

Texture of the fine-earth fraction—clay loam, sandy clay loam, silty clay loam, or silty clay

Reaction—strongly acid or very strongly acid

## ***Bendavis Series***

*Depth class:* Moderately deep

*Drainage class:* Moderately well drained

*Permeability class:* Moderate

*Landform:* Ridges

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium

*Slope range:* 1 to 15 percent

*Elevation:* 1,110 feet

*Taxonomic classification:* Loamy-skeletal, siliceous, active, mesic Typic Hapludults

### ***Typical Pedon***

Bendavis extremely gravelly silt loam, in an area of Jollymill-Bendavis complex, 3 to 15 percent slopes; in woodland; 989 feet west and 1,537 feet north of the southeast corner of sec. 11, T. 23 N., R. 34 W.; USGS Tiff City, Missouri, topographic quadrangle; UTM coordinates 4,067,217 meters Northing and 360,355 meters Easting, Zone 15, NAD 83:

A—0 to 4 inches; very dark grayish brown (10YR 3/2) extremely gravelly silt loam; weak fine granular structure; very friable; many very fine to coarse

roots throughout; many very fine and fine interstitial and tubular pores; 15 percent subrounded chert cobbles and 50 percent subrounded chert gravel; very strongly acid; abrupt irregular boundary.

E—4 to 10 inches; yellowish brown (10YR 5/4) extremely gravelly silt loam; weak very fine granular structure; very friable; many very fine to coarse roots throughout; many very fine and fine interstitial and tubular pores; 65 percent subrounded chert gravel; very strongly acid; clear wavy boundary.

Bt1—10 to 17 inches; brown (10YR 5/3) extremely gravelly silt loam; weak very fine subangular blocky structure; very friable; many very fine and fine roots throughout and common medium roots throughout; many very fine and fine interstitial and tubular pores; common distinct pale brown (10YR 6/3) skeletons on faces of peds and few distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; 10 percent subangular chert cobbles and 70 percent subrounded chert gravel; very strongly acid; clear wavy boundary.

Bt2—17 to 23 inches; 80 percent yellowish brown (10YR 5/4) and 20 percent strong brown (7.5YR 5/6) extremely gravelly silt loam; weak very fine subangular blocky structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; very few faint strong brown (7.5YR 5/6) clay films on faces of peds; 10 percent subangular chert cobbles and 70 percent subrounded chert gravel; strongly acid; abrupt wavy boundary.

2Bt3—23 to 33 inches; 70 percent red (2.5YR 4/6) and 30 percent dark red (2.5YR 3/6) extremely cobbly silt loam; weak very fine subangular blocky structure; firm; common very fine and fine roots throughout; few very fine interstitial pores; common distinct yellowish red (5YR 5/6) silt coats on faces of peds and few prominent reddish brown (5YR 4/4) clay films on faces of peds; common fine prominent spherical black (N 2/0) iron-manganese masses; 40 percent subangular chert cobbles and 45 percent subangular chert gravel; very strongly acid; abrupt irregular boundary.

3R—33 inches; bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 20 to 40 inches

*A or Ap horizon:*

Value—2 to 5

Chroma—1 to 3

Texture of the fine-earth fraction—silt loam

Content of rock fragments—10 to 70 percent gravel  
Reaction—extremely acid to neutral

*E horizon (if it occurs):*

Value—5 or 6  
Chroma—2 to 4  
Texture of the fine-earth fraction—silt loam  
Content of rock fragments—10 to 70 percent gravel  
Reaction—extremely acid to neutral

*Bt horizon:*

Hue—7.5YR or 10YR  
Value—4 to 6  
Chroma—3 to 8  
Texture of the fine-earth fraction—silt loam, loam, silty clay loam, or clay loam  
Content of rock fragments—15 to 60 percent gravel, 0 to 40 percent cobbles  
Reaction—very strongly acid to moderately acid

*2Bt horizon:*

Hue—7.5YR  
Value—3 or 4  
Chroma—6  
Texture of the fine-earth fraction—silt loam  
Content of rock fragments—60 to 80 percent  
Reaction—very strongly acid

## **Blueye Series**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability class:* Slow

*Landform:* Structural benches

*Position on the landform:* Shoulders

*Parent material:* Gravelly colluvium over clayey residuum derived from limestone and dolostone

*Slope range:* 8 to 15 percent

*Elevation:* 995 feet

*Taxonomic classification:* Fine, mixed, active, mesic Typic Argiudolls

### **Typical Pedon**

Blueye gravelly loam, in an area of Moko-Blueye-Rock outcrop complex, 8 to 15 percent slopes; in savanna rangeland; 740 feet north and 1,865 feet west of the southeast corner of sec. 16, T. 21 N., R. 31 W.; USGS Jane, Missouri, topographic quadrangle; UTM coordinates 4,044,617 meters Northing and 384,470 meters Easting, Zone 15, NAD 83:

A—0 to 7 inches; dark brown (7.5YR 3/2) (rubbed) gravelly loam; weak fine and medium granular

structure; friable; common coarse roots throughout, common very coarse roots throughout, and many very fine to medium roots throughout; many very fine and fine interstitial and tubular pores; 18 percent subrounded chert gravel; slightly alkaline; clear smooth boundary.

AB—7 to 10 inches; 50 percent dark brown (7.5YR 3/2), 30 percent dark brown (10YR 3/3), and 20 percent dark yellowish brown (10YR 4/4) very gravelly clay loam; moderate fine and medium granular structure; friable; common coarse roots throughout, common very coarse roots throughout, and many very fine to medium roots throughout; many very fine and fine interstitial and tubular pores; 35 percent subrounded chert gravel; slightly acid; clear smooth boundary.

2Bt1—10 to 17 inches; 65 percent reddish brown (5YR 4/4) and 35 percent yellowish red (5YR 4/6) very gravelly clay; moderate fine and medium subangular blocky structure; firm; many fine and medium roots throughout, common coarse roots throughout, and common very coarse roots throughout; common very fine and fine interstitial and tubular pores; common distinct reddish brown (5YR 4/4) clay films on faces of peds, few distinct red (2.5YR 4/6) clay films on faces of peds, and few prominent very dark grayish brown (10YR 3/2) organic stains on faces of peds; 35 percent subrounded chert gravel; moderately acid; abrupt smooth boundary.

2Bt2—17 to 21 inches; 45 percent reddish brown (5YR 4/3), 35 percent yellowish red (5YR 4/6), and 20 percent light yellowish brown (10YR 6/4) clay; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; common very fine and fine interstitial pores; few distinct dark reddish brown (5YR 3/3) clay films on faces of peds and few distinct dark reddish brown (5YR 3/2) clay films on faces of peds; common fine spherical black (N 2/0) iron-manganese masses; common fine irregular red (2.5YR 4/8) masses of oxidized iron; 10 percent subrounded chert gravel; slightly acid; clear smooth boundary.

2BC—21 to 25 inches; 65 percent pale brown (10YR 6/3), 25 percent brownish yellow (10YR 6/8), and 10 percent dark yellowish brown (10YR 4/4) clay; weak very fine and fine subangular blocky structure; firm; common very fine and fine roots throughout; many very fine interstitial pores; common fine spherical black (N 2/0) iron-manganese masses; 10 percent subrounded chert gravel; neutral; abrupt smooth boundary.

2R—25 inches; bedrock.

### **Range in Characteristics**

*Depth to bedrock:* 20 to 40 inches

*A or AB horizon:*

Hue—10YR or 7.5YR

Value—2 or 3

Chroma—1 to 3

Texture of the fine-earth fraction—silt loam, loam, clay loam, or silty clay loam

Content of rock fragments—15 to 50 percent gravel

Reaction—slightly acid to moderately alkaline

*2Bt horizon:*

Hue—2.5YR to 10YR

Value—3 to 5

Chroma—3 to 6

Texture of the fine-earth fraction—silty clay or clay

Content of rock fragments—5 to 35 percent gravel

Reaction—slightly acid to moderately alkaline

### **Bona Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderately slow

*Landform:* Structural benches

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium over clayey residuum derived from cherty limestone

*Slope range:* 8 to 15 percent

*Elevation:* 970 feet

*Taxonomic classification:* Clayey-skeletal, mixed, semiactive, mesic Typic Paleudolls

### **Typical Pedon**

Bona extremely gravelly silt loam, in an area of Bona-Moko complex, 8 to 15 percent slopes, very rocky; in a stand of hardwoods; 1,120 feet west and 1,268 feet north of the southeast corner of sec. 36, T. 21 N., R. 33 W.; USGS Noel, Missouri, topographic quadrangle; UTM coordinates 4,040,811 meters Northing and 370,031 meters Easting, Zone 15, NAD 83:

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) (crushed) extremely gravelly silt loam, grayish brown (10YR 5/2) dry; strong fine granular structure; very friable; many very fine and fine roots throughout, common medium roots throughout, and common very coarse roots throughout; many fine high-continuity interstitial and many fine high-continuity tubular pores; 25 percent subrounded chert cobbles and 50 percent

subrounded chert gravel; moderately acid; clear smooth boundary.

A2—4 to 11 inches; very dark grayish brown (10YR 3/2) (crushed) extremely gravelly silt loam; strong fine granular structure; very friable; many very fine and fine roots throughout and common medium roots throughout; many fine high-continuity interstitial and many fine high-continuity tubular pores; 25 percent subrounded chert cobbles and 50 percent subrounded chert gravel; moderately acid; clear smooth boundary.

BA—11 to 14 inches; brown (7.5YR 4/4) (crushed) extremely gravelly silt loam; moderate fine subangular blocky structure; friable; common very fine and fine roots throughout; many fine high-continuity interstitial and many fine high-continuity tubular pores; 25 percent subrounded chert cobbles and 50 percent subrounded chert gravel; slightly acid; clear wavy boundary.

Bt1—14 to 19 inches; reddish brown (5YR 4/4) (broken face) extremely gravelly clay loam; weak fine subangular blocky structure; friable; common very fine and fine roots throughout; common fine high-continuity interstitial and common fine high-continuity tubular pores; common distinct reddish brown (5YR 4/4) clay films on faces of peds; 20 percent subrounded chert gravel, 25 percent subrounded chert cobbles, and 30 percent subangular chert gravel; moderately acid; clear wavy boundary.

2Bt2—19 to 35 inches; red (2.5YR 4/6) (broken face) very gravelly clay; strong fine angular blocky structure; very firm; common very fine and fine roots between peds; common fine high-continuity interstitial and common fine high-continuity tubular pores; common distinct red (2.5YR 4/6) clay films on faces of peds and few distinct dark red (2.5YR 3/6) clay films on faces of peds; 1 percent fine prominent irregular black (N 2/0) iron-manganese masses with clear boundaries on faces of peds; 10 percent subangular chert cobbles and 40 percent subangular chert gravel; moderately acid; gradual wavy boundary.

3Bt3—35 to 50 inches; 75 percent red (2.5YR 4/8) (broken face) and 25 percent red (2.5YR 5/8) (broken face) clay; moderate medium subangular blocky structure; very firm; common very fine and fine roots between peds; common fine high-continuity interstitial and common fine high-continuity tubular pores; few distinct strong brown (7.5YR 5/8) clay films on faces of peds and few distinct red (2.5YR 4/8) clay films on faces of peds; 1 percent fine prominent irregular black (N

2/0) iron-manganese masses with clear boundaries on faces of peds; 3 percent subangular chert gravel and 3 percent subangular chert cobbles; neutral; gradual wavy boundary.

3Bt4—50 to 65 inches; 70 percent yellowish brown (10YR 5/8) (broken face), 20 percent red (2.5YR 4/8) (broken face), and 10 percent brownish yellow (10YR 6/8) (broken face) clay; moderate medium angular blocky structure; very firm; few very fine and fine roots between peds; common fine high-continuity interstitial and common fine high-continuity tubular pores; common distinct yellowish brown (10YR 5/8) clay films on faces of peds, few distinct light brownish gray (10YR 6/2) clay films on faces of peds, and few distinct red (2.5YR 4/8) clay bridges on faces of peds; 3 percent subangular chert gravel and 3 percent subangular chert cobbles; slightly alkaline; abrupt wavy boundary.

4R—65 inches; bedrock.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*Ap or A horizon:*

Value—2 or 3 moist; 3, 4, or 5 dry

Chroma—1 to 3

Texture of the fine-earth fraction—silt loam or loam

Content of rock fragments—35 to 55 percent gravel and 5 to 35 percent cobbles

Reaction—strongly acid to neutral

*AB horizon:*

Hue—5YR to 10YR

Value—3 or 4

Chroma—3 to 6

Texture of the fine-earth fraction—silt loam or silty clay loam

Content of rock fragments—20 to 60 percent gravel and 0 to 25 percent cobbles

Reaction—strongly acid to neutral

*Bt horizon:*

Hue—2.5YR to 10YR

Value—3 or 4

Chroma—3 to 6

Texture of the fine-earth fraction—silt loam, loam, clay loam, or silty clay loam

Content of rock fragments—10 to 65 percent gravel and 0 to 35 percent cobbles

Reaction—strongly acid to neutral

*2Bt horizon:*

Hue—2.5YR to 7.5YR

Value—4 or 5

Chroma—4 to 8

Texture of the fine-earth fraction—silty clay or clay

Content of rock fragments—35 to 50 percent gravel and 0 to 10 percent cobbles

Reaction—very strongly acid to neutral

*3Bt horizon:*

Hue—2.5YR to 10YR

Value—4 or 5

Chroma—6 to 8

Texture of the fine-earth fraction—silty clay or clay

Content of rock fragments—0 to 15 percent gravel and 0 to 10 percent cobbles

Reaction—very strongly acid to slightly alkaline

### **Boskydell Series**

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability class:* Slow

*Landform:* Bluffs or hillsides

*Position on the landform:* Footslopes

*Parent material:* Gravelly colluvium derived from cherty limestone over clayey residuum derived from shale

*Slope range:* 8 to 75 percent

*Elevation:* 1,160 feet

*Taxonomic classification:* Clayey-skeletal, mixed, active, mesic Oxyaquic Hapludalfs

### **Typical Pedon**

Boskydell very gravelly silty clay loam, 8 to 20 percent slopes; in an area of tame pastureland; 495 feet north and 1,163 feet west of the southeast corner of sec. 14, T. 21 N., R. 31 W.; USGS Jane, Missouri, topographic quadrangle; UTM coordinates 4,044,368 meters Northing and 387,900 meters Easting, Zone 15, NAD 83:

Ap—0 to 6 inches; dark brown (10YR 3/3) (rubbed) very gravelly silty clay loam, brown (10YR 4/3) (rubbed) dry; moderate fine granular structure; friable; many very fine and fine roots and common medium and coarse roots; many fine interstitial and tubular pores; 50 percent angular chert gravel; slightly acid; clear smooth boundary.

Bt1—6 to 12 inches; yellowish red (5YR 4/6) extremely gravelly clay; weak fine subangular blocky structure; firm; many very fine and fine roots and common medium and coarse roots; many fine interstitial and tubular pores; very few faint yellowish red (5YR 4/6) clay films on faces of peds; common fine spherical black (N 2/0) iron-

manganese masses between peds; 3 percent fine spherical wormcasts; 70 percent angular chert gravel; slightly acid; clear smooth boundary.

**Bt2**—12 to 16 inches; strong brown (7.5YR 4/6) and brown (10YR 5/3) extremely gravelly clay; weak fine subangular blocky structure; firm; many very fine and fine roots and common medium and coarse roots; common fine interstitial and tubular pores; common distinct strong brown (7.5YR 4/6) clay films on faces of peds; common fine spherical black (N 2/0) iron-manganese masses between peds; common fine spherical strong brown (7.5YR 5/6) masses of oxidized iron between peds; 70 percent angular chert gravel; slightly acid; abrupt wavy boundary.

**2Bt3**—16 to 39 inches; light olive brown (2.5Y 5/4) very gravelly silty clay; moderate fine and medium subangular blocky structure; firm; common very fine and fine roots and common medium roots; common very fine and fine interstitial pores; common distinct light olive brown (2.5Y 6/4) clay films on faces of peds; common fine spherical strong brown (7.5YR 5/6) masses of oxidized iron between peds; 50 percent angular shale gravel; neutral; abrupt wavy boundary.

**2Bt4**—39 to 55 inches; light yellowish brown (2.5Y 6/4) and grayish brown (2.5Y 5/2) gravelly silty clay; strong fine and medium subangular blocky structure; firm; common fine roots; common very fine and fine interstitial pores; few distinct gray (2.5Y 5/1) clay films on faces of peds; many fine spherical strong brown (7.5YR 5/6) masses of oxidized iron between peds; 30 percent angular shale gravel; neutral; abrupt wavy boundary.

**2Bt5**—55 to 69 inches; grayish brown (2.5Y 5/2) extremely gravelly silty clay loam; strong fine angular blocky structure; very firm; few fine roots; few very fine and fine interstitial pores; few faint grayish brown (2.5Y 5/2) clay films on faces of peds; common fine spherical strong brown (7.5YR 5/6) masses of oxidized iron between peds; 85 percent angular shale gravel; neutral; gradual wavy boundary.

**2Cr**—69 to 80 inches; fractured shale; fractures filled with light olive brown (2.5Y 5/3) silt loam.

### **Range in Characteristics**

*Thickness of the solum:* 24 to more than 60 inches

*Depth to bedrock:* 60 to more than 80 inches

*Percent of surface covered by rock fragments:* 0 to 1 percent (stones)

*A or Ap horizon:*

Hue—10YR or 7.5YR

Value—2 or 3

Chroma—2 to 4

Texture of the fine-earth fraction—silt loam or silty clay loam

Content of rock fragments—10 to 65 percent gravel and 0 to 30 percent channers

Reaction—slightly acid or neutral

*Bt horizon:*

Hue—2.5Y, 10YR, 7.5YR, or 5YR

Value—3 to 7

Chroma—3 to 6

Color of clay depletions (if they occur)—hue of 2.5Y or 10YR, value of 4 or 5, and chroma of 1 or 2

Texture of the fine-earth fraction—silty clay loam, silty clay, or clay

Content of rock fragments—20 to 85 percent gravel

Reaction—slightly acid to slightly alkaline

*2Bt horizon:*

Hue—5Y, 2.5Y, or 10YR

Value—3 to 7

Chroma—2 to 6

Color of clay depletions (if they occur)—hue of 5Y, 2.5Y, or 10YR, value of 4 or 5, and chroma of 1 or 2

Texture of the fine-earth fraction—silty clay loam, silty clay, or clay

Content of rock fragments—5 to 85 percent gravel and 0 to 60 percent channers

Reaction—neutral to moderately alkaline

*Cr horizon:*

Color—relict colors

Texture—silt loam or silty clay loam

### **Britwater Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderately slow

*Landform:* Terraces

*Position on the landform:* Summits

*Parent material:* Alluvium

*Slope range:* 2 to 5 percent

*Elevation:* 970 feet

*Taxonomic classification:* Fine-loamy, mixed, active, mesic Typic Paleudalfs

### **Typical Pedon**

Britwater gravelly silt loam, 2 to 5 percent slopes; in a pasture; 2,100 feet west and 450 feet north of the southeast corner of sec. 34, T. 25 N., R. 23 W.; in Stone County, Missouri; USGS Galena, Missouri,

topographic quadrangle; lat. 36 degrees 50 minutes 10 seconds N. and long. 93 degrees 26 minutes 22 seconds W.; UTM coordinates 4,074,690 meters Northing and 460,860 meters Easting, NAD 83:

- A—0 to 3 inches; brown (10YR 4/3) gravelly silt loam; moderate fine granular structure; friable; common medium and coarse and many very fine and fine roots; 20 percent subrounded chert gravel; strongly acid; clear smooth boundary.
- BE—3 to 10 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; weak very fine and fine subangular blocky structure; friable; common coarse and many very fine and fine roots; 20 percent subrounded chert gravel; strongly acid; clear smooth boundary.
- Bt1—10 to 18 inches; brown (7.5YR 5/4) silt loam; weak fine subangular blocky structure; friable; common very fine, fine, and coarse roots; common faint brown (7.5YR 4/4) clay films and few black stains on faces of ped; 10 percent subrounded chert gravel; strongly acid; clear smooth boundary.
- Bt2—18 to 27 inches; brown (7.5YR 4/4) gravelly silt loam; moderate fine subangular blocky structure; firm; common very fine, fine, and coarse roots; common faint brown (7.5YR 5/4) clay films and few black stains on faces of ped; 30 percent subrounded chert gravel; strongly acid; gradual smooth boundary.
- Bt3—27 to 40 inches; yellowish red (5YR 4/6) gravelly loam; moderate fine subangular blocky structure; firm; common very fine, fine, and medium roots; common faint yellowish red (5YR 4/6) clay films, few distinct brown (7.5YR 5/4) silt coats, and few black stains on faces of ped; 20 percent subrounded chert gravel; strongly acid; clear smooth boundary.
- Bt4—40 to 50 inches; yellowish red (5YR 4/6) very gravelly loam; moderate very fine and fine subangular blocky structure; firm; common very fine and fine roots; common faint yellowish red (5YR 4/6) clay films, common distinct brown (7.5YR 5/4) silt coats, and few black stains on faces of ped; 40 percent subrounded chert gravel; strongly acid; clear wavy boundary.
- Bt5—50 to 60 inches; 60 percent yellowish red (5YR 4/6) and 40 percent brown (7.5YR 5/4) gravelly silty clay loam; moderate very fine and fine subangular blocky structure; firm; common very fine roots; common faint yellowish red (5YR 4/6) clay films and few black stains on faces of ped; 30 percent subrounded chert gravel; strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* More than 80 inches

*A or Ap horizon:*

Hue—7.5YR or 10YR  
Value—4 or 5  
Chroma—3 or 4  
Texture of the fine-earth fraction—silt loam  
Content of rock fragments—5 to 25 percent  
Reaction—very strongly acid to neutral

*Bt horizon (upper part):*

Hue—2.5YR to 7.5YR  
Value—4 or 5  
Chroma—4 to 8  
Texture of the fine-earth fraction—silt loam, silty clay loam, or loam  
Content of rock fragments—5 to 35 percent  
Reaction—very strongly acid to slightly acid

*Bt horizon (lower part):*

Hue—10R to 7.5YR  
Value—3 to 5  
Chroma—4 to 8  
Texture of the fine-earth fraction—silty clay loam, loam, clay loam, or silty clay  
Content of rock fragments—15 to 75 percent  
Reaction—very strongly acid to slightly acid

### **Carl Series**

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Permeability class:* Very slow

*Landform:* Terraces on plains

*Position on the landform:* Treads

*Parent material:* Clayey alluvium

*Slope range:* 0 to 1 percent

*Elevation:* 918 feet

*Taxonomic classification:* Fine, smectitic, thermic Typic Epiaquerts

### **Typical Pedon**

Carl silty clay loam, 0 to 1 percent slopes, rarely flooded; in an area of cropland; 3,900 feet south and 700 feet east of the northwest corner of sec. 4, T. 29 N., R. 31 W.; in Jasper County, Missouri; USGS Jasper, Missouri, topographic quadrangle; UTM coordinates 4,126,919 meters Northing and 382,786 meters Easting:

Ap—0 to 4 inches; very dark gray (10YR 3/1) (crushed) silty clay loam, gray (10YR 5/1)

(crushed) dry; moderate thin platy structure parting to weak fine subangular blocky; very firm, moderately sticky and moderately plastic; few very fine and fine roots between peds; common very fine and fine tubular pores with low vertical continuity; 1 percent angular chert gravel; slightly alkaline; clear smooth boundary.

A—4 to 13 inches; black (10YR 2/1) (crushed) silty clay loam, dark gray (10YR 4/1) (crushed) dry; moderate thin platy structure parting to moderate medium subangular blocky; very firm, very sticky and very plastic; few very fine and fine roots between peds; common very fine and fine tubular pores with low vertical continuity; many prominent continuous pressure faces throughout and common prominent continuous clay films throughout; 1 percent angular chert gravel; slightly acid; clear wavy boundary.

Bt—13 to 27 inches; black (10YR 2/1) (crushed) silty clay, dark gray (10YR 4/1) (crushed) dry; moderate medium and coarse prismatic structure parting to strong fine angular blocky; very firm, very sticky and very plastic; few very fine and fine roots between peds; common very fine and fine tubular pores with low vertical continuity; many prominent continuous pressure faces throughout and common prominent continuous clay films throughout; 1 percent angular chert gravel; neutral; clear wavy boundary.

Bgss1—27 to 38 inches; dark gray (10YR 4/1) (interior) silty clay; moderate medium and coarse prismatic structure parting to strong fine angular blocky; very firm, very sticky and very plastic; few very fine and fine roots between peds; common very fine and fine tubular pores with low vertical continuity; very few prominent continuous intersecting slickensides on faces of peds, many prominent continuous pressure faces throughout, and common prominent continuous clay films throughout; common medium and coarse irregular extremely hard carbonate concretions (pedogenic) throughout, common fine and medium rounded black (N 2/0) soft masses of iron-manganese accumulation (pedogenic) throughout, and common fine and medium irregular yellowish brown (10YR 5/4) masses of iron accumulation throughout; 1 percent angular chert gravel; neutral; clear wavy boundary.

Bgss2—38 to 47 inches; gray (10YR 5/1) (interior) silty clay; strong medium and coarse prismatic structure parting to strong fine angular blocky; very firm, very sticky and very plastic; few very fine and fine roots between peds; common very fine and fine tubular pores with low vertical

continuity; very few prominent continuous intersecting slickensides on faces of peds, many prominent continuous pressure faces throughout, common prominent continuous clay films throughout, and very few distinct discontinuous manganese or iron-manganese stains on faces of peds; common medium and coarse irregular extremely hard carbonate concretions (pedogenic) throughout, common fine and medium rounded black (N 2/0) hard iron-manganese concretions (pedogenic) throughout, and common fine and medium irregular yellowish brown (10YR 5/6) masses of iron accumulation throughout; 1 percent angular chert gravel; slightly alkaline; clear wavy boundary.

Bgss3—47 to 53 inches; gray (10YR 5/1) (interior) silty clay; strong medium and coarse prismatic structure parting to strong fine angular blocky; very firm, very sticky and very plastic; few very fine and fine roots between peds; common very fine and fine tubular pores with low vertical continuity; very few prominent continuous intersecting slickensides on faces of peds, many prominent continuous pressure faces throughout, common prominent continuous clay films throughout, and very few distinct discontinuous manganese or iron-manganese stains on faces of peds; common medium and coarse irregular extremely hard carbonate concretions (pedogenic) throughout, common fine and medium rounded black (N 2/0) hard iron-manganese concretions (pedogenic) throughout, and common fine and medium irregular yellowish brown (10YR 5/8) masses of iron accumulation throughout; 3 percent angular chert gravel; slightly alkaline; gradual wavy boundary.

Bgss4—53 to 68 inches; gray (10YR 5/1) (interior) silty clay; strong medium and coarse prismatic structure parting to strong fine angular blocky; very firm, very sticky and very plastic; few very fine and fine roots between peds; common very fine and fine tubular pores with low vertical continuity; very few prominent continuous intersecting slickensides on faces of peds, many prominent continuous pressure faces throughout, common prominent continuous clay films throughout, and very few distinct discontinuous manganese or iron-manganese stains on faces of peds; common medium and coarse irregular extremely hard carbonate concretions (pedogenic) throughout, common fine and medium rounded black (N 2/0) hard iron-manganese concretions (pedogenic) throughout, and common fine and medium irregular yellowish brown (10YR 5/8)

masses of iron accumulation throughout; 4 percent angular chert gravel; slightly alkaline; clear wavy boundary.

2Btg—68 to 80 inches; gray (10YR 6/1) (interior) very gravelly clay; weak coarse prismatic structure parting to moderate fine subangular blocky; very firm, very sticky and very plastic; common very fine and fine tubular pores with low vertical continuity; many prominent continuous clay films on faces of peds; common fine and medium rounded black (N 2/0) hard iron-manganese concretions (pedogenic) throughout and common fine and medium irregular yellowish brown (10YR 5/8) masses of iron accumulation throughout; 30 percent angular chert gravel and 1 percent angular chert cobbles; slightly alkaline.

### **Range in Characteristics**

*Depth to slickensides:* 12 to 28 inches

*Depth to the argillic horizon:* 12 to 75 inches

*Depth to bedrock:* 60 to more than 80 inches

*Ap or A horizon:*

Value—2 or 3

Chroma—1 or 2

Redoximorphic features—iron-manganese concretions or masses of iron accumulation

Texture of the fine-earth fraction—silty clay loam or silty clay

Content of rock fragments—0 to 1 percent

Reaction—moderately acid to slightly alkaline

*Bt horizon:*

Value—2 or 3

Redoximorphic features—iron concretions, iron-manganese concretions, masses of iron accumulation, or masses of iron-manganese accumulation

Texture of the fine-earth fraction—silty clay loam or silty clay

Content of rock fragments—0 to 10 percent

Reaction—slightly acid to slightly alkaline

*Bss horizon (if it occurs):*

Value—2 or 3

Redoximorphic features—masses of iron accumulation or masses of iron-manganese accumulation

Content of rock fragments—0 to 1 percent

Reaction—moderately acid or slightly acid

*Bgss horizon:*

Value—4 or 5

Redoximorphic features—iron-manganese concretions, masses of iron accumulation, or masses of iron-manganese accumulation

Content of rock fragments—0 to 10 percent

Reaction—slightly acid to slightly alkaline

*Bt<sub>gk</sub> horizon (if it occurs):*

Value—5 to 7

Chroma—1 or 2

Redoximorphic features—iron-manganese concretions, masses of iron accumulation, or masses of iron-manganese accumulation

Texture of the fine-earth fraction—silty clay loam, loam, or sandy clay loam

Content of rock fragments—0 to 1 percent

Reaction—neutral or slightly alkaline

*2Btg horizon:*

Value—4 to 6

Redoximorphic features—iron-manganese concretions or masses of iron accumulation

Texture of the fine-earth fraction—silty clay loam, silty clay, or clay

Content of rock fragments—15 to 85 percent

Reaction—neutral or slightly alkaline

### **Cedargap Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Flood plains in river valleys

*Parent material:* Gravelly alluvium

*Slope range:* 0 to 3 percent

*Elevation:* 1,030 feet

*Taxonomic classification:* Loamy-skeletal, mixed, superactive, mesic Cumulic Hapludolls

### **Typical Pedon**

Cedargap extremely gravelly silty clay loam (fig. 28), in an area of Waben-Cedargap, occasionally flooded, complex, 0 to 5 percent slopes; in tame pastureland; 117 feet north and 522 feet east of the southwest corner of sec. 27, T. 21 N., R. 32 W.; USGS Noel, Missouri, topographic quadrangle; UTM coordinates 4,041,667 meters Northing and 375,453 meters Easting, Zone 15, NAD 83:

Ap—0 to 5 inches; very dark gray (10YR 3/1) (rubbed) extremely gravelly silty clay loam, gray (10YR 5/1) dry; weak very fine and fine granular structure; very friable; many very fine and fine roots throughout and common medium roots throughout; 25 percent subrounded chert gravel, 25 percent subangular chert gravel, and 20 percent angular chert gravel; slightly acid; abrupt smooth boundary.



Figure 28.—Profile of a Cedargap soil.

- A1—5 to 13 inches; very dark gray (10YR 3/1) (rubbed) extremely gravelly silty clay loam; moderate fine and medium granular structure; very friable; many very fine and fine roots throughout and common medium roots throughout; 25 percent subangular chert gravel, 25 percent subrounded chert gravel, and 20 percent angular chert gravel; neutral; clear smooth boundary.
- A2—13 to 34 inches; very dark grayish brown (10YR 3/2) (rubbed) extremely gravelly silty clay loam; moderate fine granular structure; very friable; many very fine and fine roots throughout and common medium roots throughout; 20 percent subrounded chert gravel, 20 percent subangular chert gravel, and 20 percent angular chert gravel; slightly acid; clear wavy boundary.
- C—34 to 80 inches; dark yellowish brown (10YR 4/4) (interior) extremely gravelly silt loam; weak fine granular structure; friable; common very fine roots throughout; 15 percent angular chert gravel, 30 percent subrounded chert gravel, and 20 percent subangular chert gravel; neutral.

#### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*Thickness of the mollic epipedon:* 24 to more than 60 inches

*Reaction:* Slightly alkaline to strongly acid

*Content of clay:* 18 to 30 percent

*Content of rock fragments:* Averages 35 to 85 percent (in the 10- to 40-inch zone); 15 to 85 percent gravel and 0 to 10 percent cobbles in individual horizons

#### *A or Ap horizon:*

Hue—7.5YR or 10YR

Value—2 or 3

Chroma—1 to 3

Texture of the fine-earth fraction—silt loam, loam, sandy loam, coarse sandy loam, sandy clay loam, clay loam, or silty clay loam

Content of rock fragments—3 to 70 percent, predominantly gravel size

#### *Bw horizon (if it occurs):*

Hue—7.5YR or 10YR

Value—3 to 5

Chroma—1 to 6

Texture of the fine-earth fraction—loam, silt loam, sandy loam, coarse sandy loam, silty clay loam, clay loam, or sandy clay loam

Content of rock fragments—15 to 70 percent

#### *C, 2C, or 2Bw horizon:*

Hue—5YR to 2.5Y

Value—2 to 7

Chroma—1 to 8

Texture of the fine-earth fraction—silt loam, loam, silty clay loam, clay loam, sandy clay loam, silty clay, sandy clay, or clay

Content of rock fragments—30 to 85 percent

### **Clarksville Series**

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability class:* Moderate

*Landform:* Ridges

*Position on the landform:* Shoulders, summits

*Parent material:* Gravelly colluvium over residuum derived from cherty limestone

*Slope range:* 3 to 15 percent

*Elevation:* 1,150 feet

*Taxonomic classification:* Loamy-skeletal, siliceous, semiactive, mesic Typic Paleudults

#### **Typical Pedon**

Clarksville very cobbly silt loam, in an area of Clarksville-Noark complex, 3 to 15 percent slopes; in woodland; 2,150 feet east and 2,050 feet north of the southwest corner of sec. 31, T. 22 N., R. 31 W.; USGS Jane, Missouri, topographic quadrangle; UTM coordinates 4,050,018 meters Northing and 381,172 meters Easting, Zone 15, NAD 83:

- A—0 to 3 inches; brown (10YR 4/3) very cobbly silt loam; weak fine granular structure; very friable; many fine and medium roots and many very coarse roots; many fine and medium interstitial and tubular pores; 10 percent subrounded chert gravel and 30 percent subrounded chert cobbles; very strongly acid; clear smooth boundary.
- E—3 to 7 inches; pale brown (10YR 6/3) very cobbly silt loam; weak fine granular structure; very friable; many fine and medium roots and many very coarse roots; many fine and medium interstitial and tubular pores; 10 percent subrounded chert gravel and 40 percent subrounded chert cobbles; very strongly acid; clear smooth boundary.
- BE—7 to 15 inches; yellowish brown (10YR 5/4) extremely cobbly silt loam; weak very fine subangular blocky structure; very friable; many fine and medium roots and common very coarse roots; common fine and medium interstitial and tubular pores; few distinct continuous pale brown (10YR 6/3) silt coats on all faces of peds; 20 percent subrounded chert gravel and 42 percent subrounded chert cobbles; very strongly acid; clear smooth boundary.
- Bt1—15 to 25 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent brown (7.5YR 5/4) extremely gravelly silt loam; weak very fine and fine subangular blocky structure; friable; common very fine and fine roots, common medium roots, and common very coarse roots; common fine continuous tubular pores and common fine continuous interstitial pores; few faint discontinuous yellowish brown (10YR 5/4) clay films on faces of peds and very few faint discontinuous pale brown (10YR 6/3) silt coats on faces of peds; 20 percent subrounded chert cobbles and 50 percent subrounded chert gravel; strongly acid; clear smooth boundary.
- 2Bt2—25 to 33 inches; 60 percent brown (7.5YR 5/4), 20 percent strong brown (7.5YR 5/6), and 20 percent red (2.5YR 4/6) extremely gravelly silty clay loam; weak fine subangular blocky structure; friable; common very fine and fine roots, common medium roots, and common very coarse roots; common fine continuous tubular pores and common fine continuous interstitial pores; common faint discontinuous brown (7.5YR 5/4) clay films on faces of peds; 10 percent subrounded chert cobbles and 70 percent subrounded chert gravel; strongly acid; clear wavy boundary.
- 2Bt3—33 to 40 inches; 55 percent red (2.5YR 4/6) and 45 percent strong brown (7.5YR 5/6) extremely gravelly clay; weak very fine and fine subangular

blocky structure; firm; common very fine and fine roots and common medium roots; common very fine continuous tubular pores and common fine continuous interstitial pores; common faint discontinuous red (2.5YR 4/6) clay films on faces of peds and very few discontinuous black stains on rock fragments; 10 percent angular chert cobbles and 60 percent angular chert gravel; very strongly acid; gradual wavy boundary.

2Bt4—40 to 53 inches; 65 percent red (2.5YR 4/6) and 35 percent strong brown (7.5YR 5/6) very gravelly silty clay; weak fine and medium subangular blocky structure; very firm; common very fine and fine roots in cracks and common medium roots in cracks; common very fine continuous tubular pores and common fine continuous interstitial pores; many faint discontinuous red (2.5YR 4/6) clay films on faces of peds, few prominent pale brown (10YR 6/3) skeletons on vertical surfaces of peds, and very few prominent discontinuous black stains on all faces of peds; 10 percent angular chert cobbles and 30 percent angular chert gravel; very strongly acid; diffuse wavy boundary.

3Bt5—53 to 80 inches; 65 percent red (2.5YR 4/6) and 35 percent strong brown (7.5YR 5/6) cobbly silty clay; weak fine and medium subangular blocky structure; very firm; common very fine and fine roots in cracks and common medium roots in cracks; common very fine continuous tubular pores and common fine continuous interstitial pores; common faint discontinuous red (2.5YR 4/6) clay films on faces of peds, few prominent continuous pale brown (10YR 6/3) skeletons on vertical surfaces of peds, and very few prominent discontinuous black stains on all faces of peds; 10 percent angular chert gravel and 10 percent angular chert cobbles; very strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*Depth to the argillic horizon:* 7 to 40 inches

*Reaction:* Moderately acid to extremely acid throughout

*Particle-size control section:* Averages 18 to 35 percent clay, 5 to 40 percent sand, and 35 to 70 percent rock fragments

*A horizon:*

Hue—10YR

Value—2 to 6

Chroma—1 to 4

Texture of the fine-earth fraction—silt loam or silt

Content of rock fragments—10 to 80 percent gravel or cobbles

*Ap horizon:*

Hue—10YR  
 Value—4 to 6  
 Chroma—2 to 4  
 Texture of the fine-earth fraction—silt loam or silt  
 Content of rock fragments—1 to 80 percent gravel or cobbles

*E horizon:*

Hue—10YR  
 Value—4 to 7  
 Chroma—2 to 6  
 Texture of the fine-earth fraction—silt loam, silt, or loam  
 Content of rock fragments—20 to 80 percent gravel or cobbles

*Bt horizon or BE horizon (if it occurs):*

Hue—2.5YR to 10YR  
 Value—4 to 6  
 Chroma—4 to 6  
 Texture of the fine-earth fraction—silty clay loam, loam, or silt loam  
 Content of rock fragments—20 to 80 percent gravel or cobbles

*2Bt and 2C horizons:*

Hue—2.5YR to 10YR  
 Value—3 to 6  
 Chroma—4 to 6  
 Texture of the fine-earth fraction—loam, silt loam, clay loam, silty clay loam, silty clay, or clay  
 Content of rock fragments—30 to 80 percent gravel or cobbles

*3Bt horizon:*

Hue—2.5YR to 10YR  
 Value—3 to 6  
 Chroma—4 to 6  
 Texture of the fine-earth fraction—clay  
 Content of rock fragments—7 to 60 percent gravel or cobbles

**Clinkenbeard Series**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability class:* Moderately slow

*Landform:* Structural benches

*Position on the landform:* Shoulders, backslopes

*Parent material:* Gravelly colluvium derived from cherty limestone over clayey residuum derived from dolostone

*Slope range:* 3 to 8 percent

*Elevation:* 1,030 feet

*Taxonomic classification:* Clayey-skeletal, mixed, superactive, mesic Typic Argiudolls

**Typical Pedon**

Clinkenbeard very flaggy loam, in an area of Clinkenbeard-Gobbler complex, 3 to 8 percent slopes; 894 feet west and 677 feet south of the northeast corner of sec. 22, T. 21 N., R. 31 W.; USGS Jane, Missouri, topographic quadrangle; UTM coordinates 4,044,058 meters Northing and 386,375 meters Easting, Zone 15, NAD 83:

Ap—0 to 4 inches; very dark gray (10YR 3/1) very flaggy loam, gray (10YR 5/1) dry; weak fine granular structure; very friable; common coarse roots throughout and many very fine to medium roots throughout; many very fine and fine interstitial and tubular pores; 15 percent angular sandstone flagstones, 5 percent subangular sandstone stones, 10 percent subangular chert cobbles, 10 percent subangular sandstone gravel, and 15 percent subangular chert gravel; slightly acid; abrupt smooth boundary.

A—4 to 9 inches; black (10YR 2/1) extremely flaggy loam; moderate fine granular structure; very friable; common coarse roots throughout and many very fine to medium roots throughout; many very fine and fine interstitial and tubular pores; 5 percent subangular sandstone stones, 15 percent angular sandstone flagstones, 10 percent subangular chert cobbles, 20 percent subangular sandstone gravel, and 30 percent subangular chert gravel; slightly acid; clear smooth boundary.

BA—9 to 13 inches; 55 percent dark brown (7.5YR 3/2) and 45 percent black (10YR 2/1) extremely flaggy loam; weak very fine and fine subangular blocky structure; very friable; common coarse roots throughout and many very fine to medium roots throughout; many very fine and fine interstitial and tubular pores; 5 percent subangular sandstone stones, 15 percent angular sandstone flagstones, 10 percent subangular chert cobbles, 20 percent subangular sandstone gravel, and 30 percent subangular chert gravel; slightly acid; clear smooth boundary.

Bt1—13 to 24 inches; 55 percent dark brown (7.5YR 3/3) (interior) and 45 percent dark red (2.5YR 3/6) (interior) and reddish brown (5YR 4/3) extremely gravelly clay; weak very fine and fine subangular blocky structure; very firm; common coarse roots throughout and many very fine to medium roots throughout; common very fine interstitial pores; common distinct dark brown (7.5YR 3/2) clay films on faces of peds and few faint dark yellowish

brown (10YR 3/6) clay films on faces of peds; common fine irregular black (N 2/0) iron-manganese masses throughout; 10 percent subangular sandstone flagstones, 10 percent subangular chert cobbles, 15 percent subangular sandstone gravel, and 35 percent angular chert gravel; slightly acid; clear smooth boundary.

Bt2—24 to 28 inches; 70 percent brown (10YR 5/3) and 30 percent yellowish red (5YR 4/6) clay; weak very fine and fine subangular blocky structure; very firm; common very fine roots throughout; common very fine interstitial pores; few distinct olive brown (2.5Y 4/3) clay films on faces of peds; common fine irregular strong brown (7.5YR 5/6) masses of oxidized iron throughout; common fine spherical black (N 2/0) iron-manganese masses throughout; 5 percent subangular chert gravel and 5 percent subangular sandstone gravel; neutral; abrupt smooth boundary.

BC—28 to 33 inches; 55 percent gray (2.5Y 6/1) and 45 percent light brownish gray (2.5Y 6/2) very channery silty clay; massive; very firm; common very fine and fine roots in cracks; common very fine interstitial pores; few distinct grayish brown (2.5Y 5/2) clay films on upper surfaces of peds or rocks; many fine irregular strong brown (7.5YR 5/6) masses of oxidized iron throughout; common fine irregular black (N 2/0) iron-manganese masses throughout; 50 percent limestone channers; slightly alkaline; abrupt smooth boundary.

2R—33 inches; bedrock.

### **Range in Characteristics**

*Depth to bedrock:* 20 to 40 inches

*Content of rock fragments:* 35 to 80 percent gravel, cobbles, stones, or flagstones throughout

*Other features:* Some pedons do not have a BC horizon.

#### *A or Ap horizon:*

Hue—7.5YR or 10YR

Value—2 or 3

Chroma—1 or 2

Texture of the fine-earth fraction—clay loam, loam, or silty clay loam

Reaction—slightly acid to slightly alkaline

#### *AB or BA horizon:*

Hue—7.5YR or 10YR

Value—2 or 3

Chroma—1 to 3

Texture of the fine-earth fraction—silty clay loam, loam, silty clay, or clay

Reaction—slightly acid to slightly alkaline

#### *Bt or 2Bt horizon:*

Hue—10YR to 2.5YR

Value—3 or 4

Chroma—3 to 6

Texture of the fine-earth fraction—silty clay or clay; clay content ranges from 40 to 65 percent

Reaction—neutral to moderately alkaline

## **Crackerneck Series**

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Divides

*Position on the landform:* Summits, shoulders

*Parent material:* Gravelly colluvium over slope alluvium over residuum derived from cherty limestone

*Slope range:* 1 to 15 percent

*Elevation:* 1,120 feet

*Taxonomic classification:* Loamy-skeletal, siliceous, semiactive, mesic Oxyaquic Paleudults

### **Typical Pedon**

Crackerneck very gravelly silt, in an area of Crackerneck-Hailey complex, karst, 8 to 15 percent slopes; in woodland; 573 feet west and 1,562 feet south of the northeast corner of sec. 9, T. 22 N., R. 33 W.; USGS Anderson, Missouri, topographic quadrangle; UTM coordinates 4,057,759 meters Northing and 366,362 meters Easting, Zone 15, NAD 83:

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) (rubbed) very gravelly silt; weak fine granular structure; very friable; many very fine roots throughout; many very fine interstitial and tubular pores; 45 percent subrounded chert gravel; strongly acid; clear smooth boundary.

A2—2 to 5 inches; brown (10YR 4/3) extremely gravelly silt; weak fine and medium granular structure; very friable; many very fine to medium roots throughout; many very fine interstitial and tubular pores; 65 percent subrounded chert gravel; strongly acid; clear smooth boundary.

BA—5 to 9 inches; 52 percent brown (10YR 4/3) and 48 percent light yellowish brown (10YR 6/4) extremely gravelly silt; weak fine and medium granular structure; very friable; common very coarse roots throughout and many very fine to coarse roots throughout; many very fine interstitial and tubular pores; 62 percent subrounded chert gravel; strongly acid; clear smooth boundary.

Bt1—9 to 16 inches; light yellowish brown (10YR 6/4) extremely gravelly silt loam; weak very fine and

fine subangular blocky structure; friable; common very coarse roots throughout and many very fine to coarse roots throughout; many very fine interstitial and tubular pores; few prominent brown (10YR 4/3) organic stains on faces of peds, few faint very pale brown (10YR 8/3) silt coats on faces of peds, and very few faint light yellowish brown (10YR 6/4) clay films on all faces of peds; 75 percent subangular chert gravel; very strongly acid; clear wavy boundary.

**Bt2**—16 to 23 inches; light yellowish brown (10YR 6/4) extremely gravelly silt loam; weak very fine and fine subangular blocky structure; firm; many very fine to coarse roots throughout; many very fine interstitial pores; few prominent light yellowish brown (10YR 6/4) clay films on faces of peds, few faint light brownish gray (10YR 6/2) skeletans on faces of peds, and few prominent brown (10YR 4/3) organic stains on faces of peds; 10 percent subrounded chert gravel, 54 percent subangular chert gravel, and 6 percent subangular tripoli paragravel; very strongly acid; abrupt wavy boundary.

**2Bt3**—23 to 42 inches; 70 percent yellowish red (5YR 4/6), 15 percent strong brown (7.5YR 5/8), and 15 percent red (2.5YR 4/6) extremely gravelly silt loam; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; common very fine interstitial pores; common prominent yellowish red (5YR 4/6) clay films on faces of peds, common prominent red (2.5YR 4/6) clay films on faces of peds, few prominent light brownish gray (10YR 6/2) skeletans on faces of peds and in pores, few prominent dark grayish brown (10YR 4/2) skeletans in root channels and/or pores, and very few prominent brownish yellow (10YR 6/8) iron stains on rock fragments; 3 percent subrounded chert cobbles, 2 percent tripoli paracobbles, 21 percent subangular chert stones, 9 percent tripoli parastones, 39 percent subangular chert gravel, and 16 percent tripoli paragravel; very strongly acid; clear wavy boundary.

**3Bt4**—42 to 68 inches; 45 percent red (2.5YR 4/8), 35 percent red (2.5YR 4/6), and 20 percent yellowish brown (10YR 5/8) extremely gravelly silty clay; strong very fine and fine angular blocky structure; firm; common very fine and fine roots throughout; common very fine interstitial pores; common prominent red (2.5YR 4/6) clay films on faces of peds, common prominent dark red (2.5YR 3/6) clay films on faces of peds, few prominent dark gray (10YR 4/1) skeletans in root channels and/or pores, few prominent brown (10YR 4/3) clay films

on faces of peds and in pores, and few prominent gray (10YR 6/1) skeletans in root channels and/or pores; 5 percent subangular chert stones, 19 percent subangular chert cobbles, 1 percent tripoli paracobbles, 62 percent subangular chert gravel, and 3 percent tripoli paragravel; extremely acid; abrupt irregular boundary.

4R—68 inches; bedrock.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*Other features:* Some pedons have an E horizon.

*A or Ap horizon:*

Hue—7.5YR or 10YR

Value—2 to 5

Chroma—1 to 4

Texture of the fine-earth fraction—silt or silt loam

Content of rock fragments—18 to 80 percent gravel, 0 to 30 percent cobbles

Reaction—very strongly acid to slightly acid

*AB, BA, or BE horizon:*

Hue—10YR or 7.5YR

Value—4 to 6

Chroma—3 to 6

Texture of the fine-earth fraction—silt loam or silt

Content of rock fragments—30 to 70 percent gravel, 0 to 40 percent cobbles, 0 to 10 percent stones, 0 to 25 percent channers

Reaction—very strongly acid to slightly acid

*Bt horizon:*

Hue—10YR, 7.5YR, 5YR, or 2.5YR

Value—4 to 8

Chroma—3 to 6

Color of clay depletions (if they occur)—hue of 10YR, value of 4 to 6, and chroma of 1 or 2

Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam

Content of rock fragments—35 to 70 percent total; 30 to 70 percent gravel, 0 to 60 percent cobbles, 0 to 20 percent channers, 0 to 15 percent stones

Reaction—very strongly acid to moderately acid

*2Bt horizon:*

Hue—10YR, 7.5YR, 5YR, or 2.5YR

Value—3 to 7

Chroma—3 to 8

Color of clay depletions (if they occur)—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 2 or 3

Texture of the fine-earth fraction—silt loam, loam, silty clay loam, clay loam, or clay

Content of rock fragments—0 to 75 percent

gravel, 0 to 30 percent cobbles, 0 to 30 percent stones

Reaction—very strongly acid or strongly acid

**3Bt horizon:**

Hue—10YR, 7.5YR, 5YR, 2.5YR, or 10R

Value—3 to 6

Chroma—3 to 8

Color of clay depletions (if they occur)—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 to 3

Texture of the fine-earth fraction—clay loam, silty clay loam, silty clay, or clay

Content of rock fragments—0 to 75 percent gravel, 0 to 65 percent cobbles, 0 to 5 percent stones

Reaction—extremely acid or very strongly acid

## **Eldorado Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Hills, structural benches

*Position on the landform:* Summits, backslopes

*Parent material:* Gravelly colluvium over residuum derived from cherty limestone

*Slope range:* 3 to 8 percent

*Elevation:* 1,010 feet

*Taxonomic classification:* Loamy-skeletal, mixed, active, thermic Typic Paleudolls

### **Typical Pedon**

Eldorado very gravelly silt loam, in an area of Eldorado-Moko complex, 3 to 8 percent slopes; in hayland; 2,111 feet west and 1,450 feet south of the northeast corner of sec. 16, T. 21 N., R. 31 W.; USGS Jane, Missouri, topographic quadrangle; UTM coordinates 4,045,499 meters Northing and 384,434 meters Easting, Zone 15, NAD 83:

Ap—0 to 10 inches; dark brown (10YR 3/3) (crushed) very gravelly silt loam, brown (10YR 5/3) dry; moderate fine granular structure; very friable; many very fine and fine roots throughout and common medium roots throughout; many fine interstitial pores; 40 percent subrounded chert gravel; moderately acid; abrupt smooth boundary.

Bt1—10 to 21 inches; 55 percent yellowish red (5YR 5/6) (broken face) and 45 percent brown (7.5YR 4/4) (broken face) very gravelly loam; weak very fine and fine subangular blocky structure; friable; many very fine and fine roots throughout; many

fine interstitial pores; few distinct yellowish red (5YR 5/6) clay films on faces of peds and few distinct dark brown (7.5YR 3/3) organic stains on faces of peds; 1 percent fine spherical black (N 2/0) iron-manganese masses throughout; 20 percent subangular chert gravel and 20 percent subrounded chert gravel; moderately acid; clear smooth boundary.

Bt2—21 to 31 inches; red (2.5YR 4/6) (broken face) very gravelly clay loam; weak fine subangular blocky structure; friable; common very fine and fine roots between peds; many fine interstitial pores; common distinct reddish brown (2.5YR 4/4) clay films on faces of peds and very few distinct dark brown (7.5YR 3/3) organic stains on faces of peds; 1 percent fine spherical black (N 2/0) iron-manganese masses throughout; 35 percent subrounded chert gravel; moderately acid; clear smooth boundary.

2Bt3—31 to 56 inches; red (2.5YR 4/6) (broken face) extremely gravelly clay; moderate fine angular blocky structure; very firm; common very fine and fine roots between peds; many very fine and fine interstitial pores; common distinct red (2.5YR 4/6) clay films on faces of peds and very few distinct olive yellow (2.5Y 6/6) clay films on faces of peds; 15 percent fine and medium spherical black (N 2/0) iron-manganese masses throughout; 10 percent angular chert cobbles, 15 percent subrounded sandstone gravel, and 45 percent subangular chert cobbles; moderately acid; clear smooth boundary.

2Bt4—56 to 65 inches; red (2.5YR 4/6) (broken face) very gravelly clay; moderate fine angular blocky structure; very firm; few very fine and fine roots between peds; many very fine and fine tubular pores; many distinct red (2.5YR 4/6) clay films on faces of peds and few distinct olive yellow (2.5Y 6/6) clay films on faces of peds; 30 percent fine and medium spherical black (N 2/0) iron-manganese masses throughout; 1 percent angular chert cobbles and 50 percent angular chert gravel; moderately acid; clear smooth boundary.

3Bt5—65 to 80 inches; olive yellow (2.5Y 6/6) (broken face) gravelly clay; strong fine angular blocky and moderate medium subangular blocky structure; very firm; few very fine and fine roots between peds; few very fine and fine tubular pores; common distinct olive yellow (2.5Y 6/6) clay films on faces of peds, few distinct pressure faces on faces of peds, few distinct red (2.5YR 4/6) clay films on faces of peds, and few distinct light brownish gray (2.5Y 6/2) skeletalans on faces of

pedes; 10 percent fine irregular black (N 2/0) iron-manganese masses throughout; 20 percent subrounded chert gravel.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*A horizon:*

Hue—7.5YR or 10YR  
 Value—2 or 3  
 Chroma—1 to 3  
 Texture of the fine-earth fraction—silt loam or loam  
 Content of rock fragments—30 to 60 percent; 30 to 60 percent gravel, 0 to 15 percent cobbles, 0 to 5 percent stones  
 Reaction—slightly acid to strongly acid

*Bt horizon (upper part):*

Hue—5YR to 10YR  
 Value—3 or 4  
 Chroma—3 to 6  
 Texture of the fine-earth fraction—silt loam, loam, clay loam, or silty clay loam  
 Content of clay—25 to 35 percent  
 Content of rock fragments—35 to 75 percent; 25 to 55 percent gravel, 5 to 35 percent cobbles, 0 to 5 percent stones  
 Reaction—slightly acid to strongly acid

*Bt horizon (lower part):*

Hue—10R to 5YR  
 Value—3 or 4  
 Chroma—6 to 8  
 Texture of the fine-earth fraction—loam, clay loam, silty clay loam, or clay  
 Content of clay—35 to 60 percent  
 Content of rock fragments—35 to 75 percent; 10 to 75 percent gravel, 10 to 35 percent cobbles, 0 to 5 percent stones  
 Reaction—slightly acid to strongly acid

*2Bt horizon:*

Hue—10R to 5YR  
 Value—3 or 4  
 Chroma—6 to 8  
 Texture of the fine-earth fraction—clay  
 Content of clay—35 to 60 percent  
 Content of rock fragments—35 to 75 percent; 2 to 60 percent gravel, 0 to 40 percent cobbles, 0 to 5 percent stones  
 Reaction—strongly acid or very strongly acid

*3Bt horizon (if it occurs):*

Texture of the fine-earth fraction—clay  
 Hue—2.5Y  
 Value—6

### **Flagspring Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderately slow

*Landform:* Ridges

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium over residuum derived from limestone over residuum derived from limestone and/or tripoli residuum

*Slope range:* 3 to 15 percent

*Elevation:* 1,340 feet

*Taxonomic classification:* Fine, mixed, semiactive, mesic Typic Hapludults

### **Typical Pedon**

Flagspring extremely gravelly silt loam, 3 to 15 percent slopes; in an area of intermixed conifers and hardwoods; 1,363 feet east and 1,591 feet north of the southwest corner of sec. 9, T. 22 N., R. 29 W.; USGS Rocky Comfort, Missouri, topographic quadrangle; UTM coordinates 4,055,215 meters Northing and 403,855 meters Easting, Zone 15, NAD 83:

A—0 to 5 inches; brown (10YR 4/3) extremely gravelly silt loam; weak fine granular structure; very friable; many very fine and fine roots and many medium and coarse roots; many fine interstitial and tubular pores; 70 percent subrounded chert gravel; extremely acid; clear smooth boundary.

E—5 to 10 inches; pale brown (10YR 6/3) very gravelly silt loam; weak fine granular structure; very friable; many very fine and fine roots and many medium and coarse roots; many fine interstitial and tubular pores; 55 percent subrounded chert gravel; very strongly acid; clear smooth boundary.

Bt1—10 to 15 inches; strong brown (7.5YR 5/6) gravelly silt loam; weak very fine and fine subangular blocky structure; friable; many very fine and fine roots and common medium and coarse roots; many fine interstitial and tubular pores; common distinct pale brown (10YR 6/3) silt coats on faces of peds, very few faint strong brown (7.5YR 5/6) clay films on faces of peds, and very few prominent black (N 2/0) manganese or iron-manganese stains on faces of peds; 20 percent subrounded chert gravel; very strongly acid; clear wavy boundary.

Bt2—15 to 22 inches; red (2.5YR 4/6) and yellowish red (5YR 5/6) very gravelly silty clay loam; moderate very fine subangular blocky structure; firm; many fine and medium roots and common very fine roots; common fine interstitial and tubular

pores; few distinct red (2.5YR 4/6) clay films on faces of peds, few prominent light yellowish brown (10YR 6/4) silt coats on faces of peds, and very few prominent black (N 2/0) manganese or iron-manganese stains on faces of peds; 40 percent subangular chert gravel; very strongly acid; clear wavy boundary.

2Bt3—22 to 33 inches; 60 percent dark red (2.5YR 3/6) and 40 percent red (2.5YR 4/6) clay; moderate fine and medium subangular blocky structure; very firm; many fine and medium roots and common very fine roots; common very fine interstitial pores; many distinct dark red (2.5YR 3/6) clay films on faces of peds; 5 percent subangular tripoli paragravel; very strongly acid; clear wavy boundary.

3Bt/C1—33 to 63 inches; 60 percent dark red (2.5YR 3/6) and 35 percent red (2.5YR 4/6) paracobbly clay; moderate medium subangular blocky structure parting to moderate very fine and fine angular blocky; very firm; many fine and medium roots and common very fine roots; common very fine interstitial and tubular pores; common distinct dark red (2.5YR 3/6) clay films on faces of peds and few distinct yellowish red (5YR 5/6) clay films on faces of peds; 15 percent subangular tripoli paragravel and 15 percent subangular tripoli paracobbles; 5 percent lenses of brown (7.5YR 5/2) loam; massive; weathered tripoli; very strongly acid; gradual wavy boundary.

3Bt/C2—63 to 80 inches; 90 percent red (2.5YR 4/6) very paracobbly clay loam; moderate very fine subangular blocky structure; very firm; common fine roots; common very fine interstitial and tubular pores; common distinct dark red (2.5YR 3/6) clay films on faces of peds; 20 percent subangular chert gravel and 50 percent subangular tripoli paracobbles; 10 percent lenses of very pale brown (10YR 8/2) loam; massive; weathered tripoli; extremely acid.

### **Range in Characteristics**

*Thickness of the solum:* More than 60 inches

*Depth to bedrock:* 60 to more than 80 inches

*Other features:* Some pedons have a BE horizon.

*Note:* Clay decreases more than 20 percent (relative) from the maximum clay content within a depth of 60 inches from the mineral soil surface.

*A or Ap horizon:*

Value—3 or 4

Chroma—2 or 3

Content of rock fragments—35 to 75 percent gravel, 0 to 5 percent cobbles

Reaction—extremely acid or very strongly acid (except in limed areas)

*E horizon:*

Value—4 to 7

Chroma—3 or 4

Content of rock fragments—35 to 75 percent gravel

Reaction—very strongly acid (except in limed areas)

*Bt horizon:*

Hue—10YR to 2.5YR

Value—4 to 6

Chroma—4 to 8

Texture of the fine-earth fraction—silt loam or silty clay loam

Content of rock fragments—15 to 40 percent gravel, 0 to 25 percent paragravel

*2Bt horizon:*

Hue—10R to 10YR

Value—3 to 6

Chroma—4 to 8

Texture of the fine-earth fraction—silty clay or clay

Content of rock fragments—0 to 30 percent paragravel

Reaction—very strongly acid or strongly acid

*3Bt/C or 3Bt horizon:*

Hue—2.5YR to 10YR

Value—3 to 7

Chroma—3 to 8; relict colors with chroma of 2 in some pedons

Texture of the fine-earth fraction—loam, clay loam, silty clay loam, or clay

Content of rock fragments—15 to 85 percent paragravel, 0 to 50 percent paracobbles

Reaction—extremely acid or very strongly acid

### **Friendly Series**

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability class:* Slow

*Landform:* Structural benches

*Position on the landform:* Backslopes

*Parent material:* Clayey colluvium over residuum derived from cherty limestone

*Slope range:* 1 to 3 percent

*Elevation:* 1,030 feet

*Taxonomic classification:* Fine, mixed, active, mesic

Fragiaquic Hapludalfs

### **Typical Pedon**

Friendly silt loam, in an area of Paintbrush-Friendly complex, 1 to 3 percent slopes; in hayland; 322 feet

east and 2,216 feet north of the southwest corner of sec. 24, T. 21 N., R. 34 W.; USGS South West City, Missouri, topographic quadrangle; UTM coordinates 4,044,891 meters Northing and 359,508 meters Easting, Zone 15, NAD 83:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) (rubbed) silt loam; weak fine granular structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; common fine irregular yellowish brown (10YR 5/8) masses of oxidized iron throughout; 1 percent subrounded chert gravel; moderately acid; abrupt smooth boundary.

A—5 to 9 inches; very dark grayish brown (10YR 3/2) (rubbed) silt; moderate fine granular structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; common fine irregular red (2.5YR 5/8) masses of oxidized iron throughout; 1 percent subrounded chert gravel; moderately acid; clear smooth boundary.

E—9 to 14 inches; 60 percent brown (10YR 5/3) and 40 percent brown (10YR 4/3) silt loam; moderate medium granular structure; friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; common fine irregular red (2.5YR 5/8) masses of oxidized iron throughout; 2 percent subrounded chert gravel; strongly acid; abrupt smooth boundary.

Bt1—14 to 24 inches; grayish brown (10YR 5/2) silty clay; weak coarse prismatic structure parting to strong very fine and fine subangular blocky; very firm; many very fine and fine roots between pedis; many very fine and fine interstitial and tubular pores; many prominent dark yellowish brown (10YR 4/4) clay films on faces of pedis; many fine and medium irregular red (10R 4/8) masses of oxidized iron throughout; 1 percent subrounded chert gravel; strongly acid; clear smooth boundary.

Bt2—24 to 32 inches; dark yellowish brown (10YR 4/4) silty clay; moderate very fine and fine subangular blocky structure; very firm; many very fine and fine roots between pedis; common very fine interstitial and tubular pores; common prominent dark yellowish brown (10YR 4/4) clay films on faces of pedis and few prominent strong brown (7.5YR 5/8) iron stains on faces of pedis; few fine irregular black (N 2/0) iron-manganese masses throughout; 5 percent subrounded chert gravel; strongly acid; abrupt smooth boundary.

2Btx—32 to 57 inches; yellowish brown (10YR 5/6) gravelly silty clay loam; weak very coarse prismatic structure parting to moderate fine and medium subangular blocky; very firm; common

very fine and fine roots between pedis; many very fine and fine interstitial and tubular pores; many prominent light brownish gray (10YR 6/2) skeletalons on faces of pedis and in pores, few prominent strong brown (7.5YR 4/6) clay films on faces of pedis, and few prominent grayish brown (10YR 5/2) clay films on faces of pedis and in pores; common fine irregular very dark brown (10YR 2/2) iron-manganese masses throughout; 7 percent subangular chert gravel, 3 percent subangular tripoli paragravel, 14 percent subrounded chert gravel, and 7 percent subrounded tripoli paragravel; strongly acid; abrupt irregular boundary.

3Bt1—57 to 67 inches; strong brown (7.5YR 5/6) gravelly silty clay loam; weak fine subangular blocky structure; very firm; common very fine and fine roots between pedis; many very fine to medium interstitial and tubular pores; few prominent strong brown (7.5YR 4/6) clay films on faces of pedis, few prominent light brownish gray (10YR 6/2) skeletalons on faces of pedis and in pores, and few prominent dark gray (10YR 4/1) clay films on faces of pedis and in pores; common fine and medium irregular weakly cemented black (N 2/0) iron-manganese concretions throughout; common fine irregular strong brown (7.5YR 5/8) masses of oxidized iron throughout; 10 percent subangular chert gravel and 20 percent subrounded chert gravel; strongly acid; abrupt smooth boundary.

3Bt2—67 to 80 inches; red (2.5YR 4/6) extremely gravelly clay loam; moderate fine subangular blocky structure; very firm; common very fine and fine roots between pedis; common very fine and fine interstitial pores; common prominent dark red (2.5YR 3/6) clay films on faces of pedis, few prominent light yellowish brown (10YR 6/4) skeletalons on all faces of pedis, few prominent light brownish gray (10YR 6/2) skeletalons on faces of pedis and in pores, and few prominent brown (10YR 5/3) clay films on faces of pedis and in pores; many medium and coarse irregular black (N 2/0) iron-manganese concretions around rock fragments; 35 percent subrounded chert gravel and 40 percent subangular chert gravel; strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* 60 to more than 80 inches

*Other features:* Some pedons in areas that have not been cultivated have an E horizon.

*A horizon:*

Value—2 or 3

Texture of the fine-earth fraction—silt loam or silty clay loam  
 Content of rock fragments—0 to 10 percent gravel, 0 to 5 percent cobbles  
 Reaction—moderately acid to neutral

*Bt horizon (upper part):*

Hue—10YR or 7.5YR  
 Value—4 or 5  
 Chroma—1 to 6  
 Texture of the fine-earth fraction—silty clay loam or silty clay  
 Content of rock fragments—0 to 10 percent gravel, 0 to 5 percent cobbles  
 Reaction—strongly acid to slightly alkaline

*Bt horizon (lower part):*

Hue—10YR or 7.5YR  
 Value—4 to 6  
 Chroma—2 to 6  
 Texture of the fine-earth fraction—silty clay loam or silty clay  
 Content of rock fragments—0 to 10 percent gravel, 0 to 5 percent cobbles  
 Reaction—strongly acid to slightly alkaline

*2Ex horizon or the upper part of the 2Btx horizon (if it occurs):*

Hue—7.5YR or 10YR  
 Value—4 to 6  
 Chroma—2 to 4  
 Texture of the fine-earth fraction—silt loam or silty clay loam  
 Content of rock fragments—5 to 60 percent gravel, 0 to 40 percent cobbles  
 Reaction—strongly acid to neutral

*2Btx horizon:*

Hue—2.5YR to 10YR  
 Value—4 to 7  
 Chroma—1 to 8  
 Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam  
 Content of rock fragments—5 to 60 percent gravel, 0 to 40 percent cobbles  
 Reaction—strongly acid to slightly alkaline  
 Note—rock fragments are typically horizontally oriented, and there is variable weakly or moderately expressed brittleness in 30 to 60 percent of the fine material.

*3Bt horizon:*

Hue—10R to 10YR  
 Value—3 to 6  
 Chroma—3 to 8; iron depletions with lower chroma in some pedons

Texture of the fine-earth fraction—clay or silty clay  
 Content of rock fragments—5 to 75 percent gravel, 0 to 40 percent cobbles  
 Reaction—strongly acid to slightly alkaline

**Gasconade Series**

*Depth class:* Shallow

*Drainage class:* Somewhat excessively drained

*Permeability class:* Moderately slow

*Landform:* Hillsides

*Position on the landform:* Backslopes

*Parent material:* Clayey residuum derived from dolostone

*Slope range:* 35 to 60 percent

*Elevation:* 970 feet

*Taxonomic classification:* Clayey-skeletal, mixed, superactive, mesic Lithic Hapludolls

**Typical Pedon**

Gasconade gravelly clay loam, 3 to 8 percent slopes; in a built-up area; 300 feet south and 1,325 feet east of the northwest corner of sec. 1, T. 21 N., R. 24 W.; Stone County, Missouri; USGS Lampe, Missouri, topographic quadrangle; lat. 36 degrees 33 minutes 08 seconds N. and long. 93 degrees 28 minutes 53 seconds W.; UTM coordinates 4,045,310 meters Northing and 456,920 meters Easting:

A1—0 to 6 inches; very dark gray (10YR 3/1) gravelly clay loam, dark gray (10YR 4/1) dry; weak very fine and fine granular structure; friable; common very coarse and many fine and medium roots throughout; 20 percent subrounded chert gravel; slightly alkaline; abrupt wavy boundary.

A2—6 to 12 inches; very dark gray (10YR 3/1) very flaggy clay loam; weak fine and medium granular structure; friable; common very fine, fine, medium, and coarse roots throughout; 35 percent subrounded chert gravel and 25 percent chert flagstones; slightly alkaline; abrupt wavy boundary.

R—12 inches; dolostone.

**Range in Characteristics**

*Depth to bedrock:* 4 to 20 inches

*A horizon:*

Hue—10YR

Value—2 or 3

Chroma—1 to 3

Texture of the fine-earth fraction—silty clay loam, clay loam, silty clay, or clay

Content of rock fragments—20 to 65 percent; 10 to 55 percent gravel, 0 to 30 percent cobbles,

channers, or flagstones, and 0 to 15 percent stones  
 Reaction—slightly acid to slightly alkaline

### **Gladden Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderate in the upper part and rapid in the lower part

*Landform:* Flood plains in river valleys

*Parent material:* Loamy alluvium

*Slope range:* 0 to 3 percent

*Elevation:* 920 feet

*Taxonomic classification:* Coarse-loamy, siliceous, superactive, mesic Dystric Fluventic Eutrudepts

#### **Typical Pedon**

Gladden loam (fig. 29), in an area of Cedargap, frequently flooded-Gladden, occasionally flooded, complex, 0 to 3 percent slopes; in hayland; 70 feet west and 122 feet south of the northeast corner of sec. 22, T. 22 N., R. 31 W.; USGS McNatt, Missouri, topographic quadrangle; UTM coordinates 4,053,846 meters Northing and 387,161 meters Easting, Zone 15, NAD 83:

A<sub>p</sub>—0 to 8 inches; dark brown (10YR 3/3) loam; moderate fine and medium granular structure; friable; many very fine to medium roots throughout; many very fine to medium tubular pores; 1 percent subrounded chert gravel; neutral; clear smooth boundary.

Bw<sub>1</sub>—8 to 17 inches; 60 percent brown (10YR 4/2) and 40 percent very dark grayish brown (10YR 3/2) fine sandy loam; moderate medium and coarse granular structure; friable; many very fine to medium roots throughout; many very fine to medium tubular pores; 1 percent subrounded chert gravel; neutral; clear smooth boundary.

Bw<sub>2</sub>—17 to 35 inches; brown (10YR 4/3) silt loam; weak fine granular structure; firm; common very fine to medium roots throughout; many very fine to medium tubular pores; 2 percent (by volume) krotovinas; common fine and medium irregular black (N 2/0) iron-manganese masses throughout; 2 percent subrounded chert gravel; neutral; clear smooth boundary.

Bw<sub>3</sub>—35 to 65 inches; 65 percent dark brown (10YR 3/3) and 35 percent brown (10YR 4/3) loam; weak fine granular structure; firm; common very fine to medium roots throughout; many very fine and fine tubular pores; 1 percent (by volume) krotovinas; few fine irregular black (N 2/0) iron-manganese



Figure 29.—Profile of a Gladden soil.

masses throughout; 3 percent subangular chert gravel and 3 percent subrounded chert gravel; neutral; abrupt smooth boundary.

2C—65 to 80 inches; brown (10YR 4/3) extremely gravelly coarse sand; single grain; loose; common very fine and fine roots; many very fine to medium voids between rock fragments; 5 percent angular chert gravel, 10 percent rounded chert gravel, 30 percent subrounded chert gravel, and 30 percent subangular chert gravel; neutral.

#### **Range in Characteristics**

*Reaction:* Very strongly acid to neutral

*Depth to bedrock:* 60 to more than 80 inches

*A horizon:*

Value—3 to 5

Chroma—2 or 3

Texture of the fine-earth fraction—loam, silt loam, fine sandy loam, or sandy loam

Content of rock fragments—0 to 35 percent gravel

*Bw horizon:*

Hue—10YR or 7.5YR  
 Value—3 to 6  
 Chroma—3 to 6  
 Texture of the fine-earth fraction—loam, silt loam, sandy loam, or fine sandy loam  
 Content of rock fragments—0 to 35 percent gravel

*C horizon:*

Hue—10YR or 7.5YR  
 Value—4 to 6  
 Chroma—3 to 8  
 Texture of the fine-earth fraction—loam, silt loam, fine sandy loam, sandy loam, loamy sand, or sand  
 Content of rock fragments—35 to 80 percent gravel

*2C horizon:*

Hue—similar to that in the C horizon  
 Value—3 to 8  
 Chroma—2 to 4  
 Texture of the fine-earth fraction—similar to that in the C horizon

**Gobbler Series**

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Structural benches

*Position on the landform:* Summits

*Parent material:* Gravelly colluvium over gravelly residuum derived from limestone and dolostone

*Slope range:* 3 to 8 percent

*Elevation:* 1,035 feet

*Taxonomic classification:* Clayey-skeletal, mixed, active, mesic Typic Hapludalfs

**Typical Pedon**

Gobbler gravelly silt loam, in an area of Clinkenbeard-Gobbler complex, 3 to 8 percent slopes; in a pasture; 443 feet south and 1,494 feet west of the northeast corner of sec. 22, T. 21 N., R. 31 W.; USGS Jane, Missouri, topographic quadrangle; UTM coordinates 4,044,142 meters Northing and 386,180 meters Easting, Zone 15, NAD 83:

Ap—0 to 7 inches; dark brown (10YR 3/3) gravelly silt loam; moderate very fine and fine granular structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; 5 percent subangular chert gravel and 20 percent subrounded chert gravel; neutral; abrupt smooth boundary.

BA—7 to 16 inches; 70 percent dark yellowish brown (10YR 4/4) and 30 percent strong brown (7.5YR 4/6) very gravelly silt loam; weak very fine and fine subangular blocky structure; friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; 10 percent subrounded chert cobbles and 45 percent subrounded chert gravel; neutral; clear smooth boundary.

2Bt1—16 to 26 inches; 55 percent brown (7.5YR 4/3) and 45 percent reddish brown (5YR 4/4) extremely gravelly clay loam; moderate very fine and fine subangular blocky structure; friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; common distinct brown (7.5YR 4/3) clay films on faces of peds and few distinct reddish brown (5YR 4/4) clay films on faces of peds; few fine spherical black (N 2/0) iron-manganese masses throughout; 10 percent subrounded chert cobbles, 10 percent subrounded sandstone gravel, and 55 percent subrounded chert cobbles; neutral; clear wavy boundary.

2Bt2—26 to 38 inches; 70 percent reddish brown (5YR 4/4) and 30 percent brown (7.5YR 4/3) extremely gravelly clay; moderate very fine and fine subangular blocky structure; firm; many very fine and fine roots throughout; common very fine and fine interstitial pores; many distinct reddish brown (5YR 4/4) clay films on faces of peds and few distinct brown (7.5YR 4/3) clay films on faces of peds; few fine spherical black (N 2/0) iron-manganese masses throughout; 5 percent subrounded sandstone cobbles, 10 percent subrounded chert gravel, 20 percent subangular chert cobbles, and 35 percent subrounded chert cobbles; neutral; clear wavy boundary.

2Bt3—38 to 43 inches; 70 percent red (2.5YR 4/6) and 30 percent dark reddish brown (5YR 3/3) clay; weak coarse angular blocky structure; very firm; many very fine and fine roots throughout; few very fine and fine interstitial pores; many prominent red (2.5YR 4/6) clay films on faces of peds, common prominent dark reddish brown (5YR 3/3) clay films on faces of peds, and common prominent brown (10YR 4/3) pressure faces on faces of peds; common fine spherical black (N 2/0) iron-manganese masses throughout; 40 percent subrounded limestone cobbles and 50 percent subrounded limestone gravel; neutral; clear wavy boundary.

2C—43 to 50 inches; light gray (2.5Y 7/2) extremely cobbly silty clay loam; massive; common very fine and fine roots throughout; many very fine and fine interstitial pores; few distinct dark reddish brown

(2.5YR 3/4) clay films on rock fragments; 40 percent subrounded limestone gravel and 30 percent subrounded limestone cobbles; slightly alkaline; abrupt smooth boundary.

2R—50 inches; bedrock.

### **Range in Characteristics**

*Depth to bedrock:* 40 to 60 inches

*Other features:* Some pedons have a 2C horizon. This horizon is variable in color and texture.

*Note:* In pedons where the surface layer is at least 6 inches thick, value is higher than 3.5.

*A or Ap horizon:*

Hue—7.5YR or 10YR

Value—3 to 5

Chroma—2 to 6

Texture of the fine-earth fraction—silt loam

Content of rock fragments—15 to 45 percent; 15 to 45 percent gravel, 0 to 10 percent cobbles

Reaction—very strongly acid to neutral

*E horizon (if it occurs):*

Hue—10YR

Value—5 to 7

Chroma—2 to 4

Texture of the fine-earth fraction—silt loam

Content of rock fragments—15 to 60 percent gravel

Reaction—very strongly acid to neutral

*BA, AB, or BE horizon (if it occurs):*

Hue—5YR to 10YR

Value—3 to 5

Chroma—3 to 6

Texture of the fine-earth fraction—silt loam

Content of rock fragments—5 to 65 percent; 5 to 55 percent gravel, 0 to 35 percent cobbles

Reaction—very strongly acid to neutral

*Bt horizon:*

Hue—2.5YR to 10YR

Value—3 to 5

Chroma—3 to 6

Texture of the fine-earth fraction—silt loam, silty clay loam, silty clay, or clay

Content of rock fragments—15 to 75 percent; 5 to 75 percent gravel, 0 to 45 percent cobbles

Reaction—strongly acid to neutral

*2Bt horizon:*

Hue—2.5YR to 10YR

Value—3 to 6

Chroma—3 to 8

Texture of the fine-earth fraction—silty clay loam, silty clay, or clay

Content of rock fragments—5 to 75 percent; 0 to

75 percent gravel, 0 to 75 percent cobbles, 0 to 50 percent stones

Reaction—strongly acid to slightly alkaline

### **Goss Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Hillsides

*Position on the landform:* Backslopes

*Parent material:* Gravelly colluvium over clayey residuum derived from cherty limestone

*Slope range:* 8 to 35 percent

*Elevation:* 1,240 feet

*Taxonomic classification:* Clayey-skeletal, mixed, active, mesic Typic Paleudalfs

### **Typical Pedon**

Goss extremely gravelly silt loam, in an area of Rueter-Goss-Jollymill complex, 15 to 35 percent slopes; in tame pastureland; USGS Bethpage, Missouri, topographic quadrangle; UTM coordinates 4,065,879 meters Northing and 399,307 meters Easting, Zone 15, NAD 83:

Ap—0 to 9 inches; dark brown (10YR 3/3) extremely gravelly silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many very fine and fine roots and common medium roots; many very fine interstitial and tubular pores; 20 percent subrounded chert cobbles and 50 percent subrounded chert gravel; strongly acid; clear wavy boundary.

Bt1—9 to 18 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent red (2.5YR 5/8) very gravelly silt loam; weak fine subangular blocky structure parting to weak fine granular; friable; many very fine and fine roots and common medium roots; many very fine interstitial and tubular pores; few prominent dark brown (10YR 3/3) organic stains on horizontal faces of peds and few distinct red (2.5YR 5/8) clay films on faces of peds; 10 percent subrounded chert cobbles, 32 percent subrounded chert gravel, and 8 percent subrounded tripoli paragravel; moderately acid; clear wavy boundary.

2Bt2—18 to 25 inches; 60 percent red (2.5YR 4/8) and 40 percent yellowish red (5YR 4/6) extremely gravelly silty clay loam; weak fine subangular blocky structure; firm; many very fine and fine roots; many very fine to medium interstitial pores; common prominent red (2.5YR 4/8) clay films on faces of peds and few prominent yellowish red

(5YR 4/6) clay films on faces of peds; 10 percent subrounded chert cobbles, 40 percent subrounded chert gravel, and 17 percent subrounded tripoli paragravel; moderately acid; clear smooth boundary.

2Bt3—25 to 47 inches; 60 percent red (2.5YR 4/6) and 40 percent red (2.5YR 5/8) extremely gravelly clay; strong fine subangular blocky structure; very firm; common very fine and fine roots; common very fine to medium interstitial pores; many prominent red (2.5YR 4/6) clay films on faces of peds; 1 percent subangular chert cobbles, 18 percent subangular chert gravel, and 52 percent subangular tripoli paragravel; moderately acid; clear smooth boundary.

2Bt4—47 to 80 inches; 63 percent red (2.5YR 4/6), 30 percent very pale brown (10YR 8/4), and 7 percent yellowish red (5YR 5/8) very gravelly clay; moderate fine subangular blocky structure; very firm; common very fine and fine roots; few very fine interstitial pores; many prominent dark red (2.5YR 3/6) clay films on faces of peds; 20 percent subangular tripoli paracobbles, 15 percent subangular tripoli paragravel, and 25 percent subangular chert gravel; strongly acid.

### **Range in Characteristics**

*Reaction:* Very strongly acid to neutral

*Depth to bedrock:* 60 to more than 80 inches

*Other features:* Some pedons have a 2C, 3Bt, or 3C horizon. This horizon, if it occurs, has variable colors and textures.

*A or Ap horizon:*

Hue—7.5YR or 10YR

Value—2 to 4; 5 or 6 dry

Chroma—2 to 4

Texture of the fine-earth fraction—silt loam or loam

Content of rock fragments—35 to 75 percent; 35 to 75 percent gravel, 0 to 20 percent cobbles, 0 to 10 percent stones

*E horizon (if it occurs):*

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 or 4

Texture of the fine-earth fraction—silt loam, loam, or silty clay loam

Content of rock fragments—35 to 75 percent; 35 to 75 percent gravel, 0 to 15 percent cobbles, 0 to 10 percent stones

*BA, BE, or Bt horizon (if it occurs):*

Hue—2.5YR to 10YR

Value—4 to 6

Chroma—3 to 8

Texture of the fine-earth fraction—silt loam, loam, clay loam, or silty clay loam

Content of rock fragments—5 to 85 percent; 5 to 70 percent gravel, 0 to 25 percent cobbles, 0 to 10 percent stones

*2Bt horizon:*

Hue—10R to 10YR

Value—3 to 6

Chroma—3 to 8

Texture of the fine-earth fraction—silty clay loam, silty clay, or clay

Content of rock fragments—15 to 70 percent; 15 to 70 percent gravel, 0 to 25 percent cobbles, 0 to 10 percent stones

Note—the dominant matrix color in the lower part of this horizon (to a depth of 60 inches) has hue of 7.5YR or redder and chroma of 6 or 8.

### **Hailey Series**

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability class:* Rapid

*Landform:* Hillsides

*Position on the landform:* Shoulders, backslopes

*Parent material:* Colluvium derived from cherty limestone over residuum derived from cherty limestone

*Slope range:* 8 to 70 percent

*Elevation:* 933 feet

*Taxonomic classification:* Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs

### **Typical Pedon**

Hailey very cobbly silt loam, in an area of Crackerneck-Hailey complex, karst, 8 to 15 percent slopes, stony; in a pasture; 1,653 feet west and 2,278 feet south of the northeast corner of sec. 11, T. 22 N., R. 34 W.; USGS Tiff City, Missouri, topographic quadrangle; UTM coordinates 4,057,898 meters Northing and 359,617 meters Easting, Zone 15, NAD 83:

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) very cobbly silt loam; weak fine granular structure; very friable; many very fine roots throughout; many very fine and fine interstitial pores; 25 percent angular chert cobbles and 35 percent subrounded chert gravel; moderately acid; gradual smooth boundary.

A2—3 to 8 inches; 60 percent brown (10YR 4/3) and 40 percent dark brown (10YR 3/3) extremely gravelly silt loam; weak fine granular structure; very friable; common very coarse roots throughout

and many very fine to coarse roots throughout; many very fine interstitial pores; 5 percent subangular chert cobbles and 60 percent subrounded chert gravel; strongly acid; clear smooth boundary.

- E—8 to 14 inches; yellowish brown (10YR 5/4) very gravelly silt loam; weak very fine granular structure; very friable; many very coarse roots throughout and many very fine to coarse roots throughout; many very fine interstitial pores; 55 percent subangular chert gravel; very strongly acid; gradual smooth boundary.
- Bw1—14 to 26 inches; 55 percent yellowish brown (10YR 5/4) and 45 percent dark yellowish brown (10YR 4/4) extremely cobbly silt loam; weak very fine subangular blocky structure; very friable; many very fine to medium roots throughout; many coarse voids between rock fragments and many very fine interstitial pores; 35 percent angular chert cobbles and 40 percent subangular chert gravel; very strongly acid; abrupt wavy boundary.
- Bw2—26 to 60 inches; 60 percent light yellowish brown (10YR 6/4) and 40 percent yellowish brown (10YR 5/4) extremely cobbly silt loam; weak very fine subangular blocky structure; friable; many very fine and fine roots throughout and common medium roots throughout; many coarse voids between rock fragments; 1 percent angular chert stones, 10 percent angular chert gravel, and 80 percent angular chert cobbles; strongly acid; abrupt wavy boundary.
- 2Bt1—60 to 77 inches; 40 percent yellowish red (5YR 4/6), 35 percent strong brown (7.5YR 5/6), and 25 percent red (2.5YR 4/6) very cobbly silty clay loam; moderate very fine and fine angular blocky structure; firm; common very fine roots between peds; many very fine interstitial pores; 10 percent discontinuous distinct yellowish red (5YR 4/6) clay films on faces of peds and 20 percent continuous distinct red (2.5YR 4/6) (moist) clay films on faces of peds; 12 percent fine prominent irregular black (N 2/0) iron-manganese masses on faces of peds; 2 percent angular chert gravel and 40 percent subangular chert cobbles; moderately acid; gradual wavy boundary.
- 2Bt2—77 to 87 inches; 60 percent red (2.5YR 4/6) and 40 percent reddish yellow (7.5YR 6/6) silty clay; strong very fine and fine angular blocky structure; extremely firm; common very fine tubular pores; 65 percent continuous prominent red (2.5YR 4/6) clay films on all faces of peds; 20 percent fine prominent irregular black (N 2/0) iron-manganese masses on faces of peds; 12 percent subangular chert gravel; strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*A horizon:*

Value—2 to 6

Chroma—1 to 4

Texture of the fine-earth fraction—silt loam or silt

Content of rock fragments—35 to 80 percent gravel, 0 to 25 percent cobbles

Reaction—very strongly acid to slightly acid

*E horizon:*

Value—4 to 7

Chroma—2 to 4

Texture of the fine-earth fraction—silt loam or silt

Content of rock fragments—35 to 80 percent gravel, 0 to 25 percent cobbles

Reaction—very strongly acid to moderately acid

*Bw horizon:*

Hue—10YR or 7.5YR

Value—4 to 6

Chroma—3 to 6

Texture of the fine-earth fraction—silt loam, loam, or sandy loam

Content of rock fragments—10 to 80 percent gravel, 0 to 80 percent cobbles, 0 to 40 percent stones

Reaction—very strongly acid to moderately acid

*2Bt or 3Bt horizon:*

Hue—2.5YR to 10YR

Value—3 to 7

Chroma—4 to 8

Texture of the fine-earth fraction—silty clay loam, silty clay, or clay

Content of rock fragments—5 to 75 percent; 5 to 75 percent gravel, 0 to 35 percent cobbles, 0 to 40 percent stones

Reaction—slightly acid to extremely acid

### **Hartville Series**

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability class:* Slow

*Landform:* Strath terraces and footslopes along major streams

*Position on the landform:* Treads

*Parent material:* Silty and clayey alluvium over gravelly clayey alluvium

*Slope range:* 0 to 3 percent

*Elevation:* 890 feet

*Taxonomic classification:* Fine, mixed, active, mesic Aquic Hapludalfs

### **Typical Pedon**

Hartville gravelly silt loam, 0 to 3 percent slopes; in tame pasture; 217 feet north and 868 feet west of the southeast corner of sec. 2, T. 21 N., R. 32 W.; USGS Jane, Missouri, topographic quadrangle; UTM coordinates 4,047,991 meters Northing and 378,546 meters Easting, Zone 15, NAD 83:

- Ap—0 to 8 inches; dark grayish brown (10YR 4/2) (rubbed) gravelly silt loam; weak fine granular structure; friable; many fine roots throughout and many very fine roots throughout; many fine high-continuity tubular and common medium high-continuity interstitial pores; few fine distinct spherical black (N 2/0) iron-manganese masses infused into matrix along ped faces; 10 percent subrounded chert gravel and 10 percent rounded chert gravel; neutral; abrupt smooth boundary.
- Bt1—8 to 14 inches; light yellowish brown (2.5Y 6/3) (interior) gravelly silt loam; moderate fine subangular blocky and moderate very fine subangular blocky structure; firm; common fine roots throughout and common very fine roots throughout; many fine high-continuity tubular and common very fine high-continuity interstitial pores; very few faint light yellowish brown (2.5Y 6/3) clay films on all faces of peds and very few distinct dark grayish brown (10YR 4/2) organic stains on all faces of peds; few fine distinct spherical black (N 2/0) iron-manganese masses infused into matrix along ped faces; 5 percent rounded chert gravel and 10 percent subrounded chert gravel; neutral; clear smooth boundary.
- Bt2—14 to 20 inches; 70 percent light olive brown (2.5Y 5/3) (interior) and 30 percent light yellowish brown (2.5Y 6/3) (interior) gravelly silty clay; moderate very fine subangular blocky and moderate fine subangular blocky structure; firm; common very fine roots between peds; common fine moderate-continuity interstitial and common very fine moderate-continuity tubular pores; few faint light olive brown (2.5Y 5/3) clay films on all faces of peds and few prominent light brownish gray (10YR 6/2) skeletans on all faces of peds; common fine prominent irregular strong brown (7.5YR 5/8) masses of oxidized iron infused into matrix along ped faces; few fine distinct spherical black (N 2/0) iron-manganese masses infused into matrix along ped faces; 10 percent rounded chert gravel and 10 percent subrounded chert gravel; very strongly acid; clear smooth boundary.
- Btg1—20 to 31 inches; grayish brown (2.5Y 5/2) (interior) gravelly clay; weak fine subangular blocky and weak very fine subangular blocky

structure; very firm; common very fine roots between peds; few very fine low-continuity interstitial pores; common faint grayish brown (2.5Y 5/2) clay films on all faces of peds; common fine prominent irregular strong brown (7.5YR 5/8) masses of oxidized iron infused into matrix along ped faces; common fine prominent irregular black (N 2/0) iron-manganese masses infused into matrix along ped faces; 10 percent rounded chert gravel and 10 percent subrounded chert gravel; extremely acid; clear smooth boundary.

- 2Btg2—31 to 44 inches; 50 percent dark gray (2.5Y 4/1) (interior), 30 percent light olive brown (2.5Y 5/3) (interior), and 20 percent yellowish red (5YR 4/6) (interior) very gravelly silty clay; weak fine subangular blocky structure; firm; common very fine roots between peds; common very fine low-continuity interstitial pores; common faint dark gray (2.5Y 4/1) clay films on all faces of peds; few fine prominent spherical black (N 2/0) iron-manganese concretions; 25 percent rounded chert gravel and 30 percent subrounded chert gravel; extremely acid; abrupt smooth boundary.

- 2Btg3—44 to 68 inches; 60 percent dark gray (2.5Y 4/1) (interior) and 40 percent light olive brown (2.5Y 5/3) (interior) extremely gravelly clay; weak fine subangular blocky structure; firm; few very fine roots between peds; common very fine low-continuity interstitial pores; few faint dark gray (2.5Y 4/1) clay films on all faces of peds; few fine prominent spherical black (N 2/0) iron-manganese concretions; 30 percent rounded chert gravel and 40 percent subrounded chert gravel; extremely acid; clear smooth boundary.

- 2Btg4—68 to 80 inches; 60 percent very dark gray (2.5Y 3/1) (interior), 30 percent grayish brown (2.5Y 5/2) (interior), and 10 percent strong brown (7.5YR 5/6) (interior) extremely gravelly clay loam; moderate fine subangular blocky structure; firm; few very fine roots between peds; common very fine low-continuity interstitial pores; very few faint very dark gray (2.5Y 3/1) clay films on all faces of peds; few fine prominent spherical black (N 2/0) iron-manganese concretions; 10 percent subangular shale channers, 15 percent rounded chert gravel, and 45 percent subrounded chert gravel; extremely acid; abrupt smooth boundary.

- 3Cr—80 inches; fractured shale.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*Other features:* Iron depletions with chroma of 2 or less are in the upper 10 inches of the argillic horizon.

*Ap horizon:*

Value—3 to 5  
 Chroma—2 to 4  
 Content of rock fragments—0 to 10 percent gravel  
 Reaction—very strongly acid to neutral

*E horizon (if it occurs):*

Value—5 or 6  
 Chroma—2 to 4  
 Content of rock fragments—0 to 10 percent gravel  
 Reaction—very strongly acid to neutral

*BE horizon (if it occurs):*

Hue—7.5YR or 10YR  
 Value—4 to 6  
 Chroma—3 to 6  
 Texture of the fine-earth fraction—silt loam or silty clay loam  
 Content of rock fragments—0 to 10 percent gravel  
 Reaction—very strongly acid to neutral

*Bt horizon (upper part):*

Hue—7.5YR to 2.5Y  
 Value—4 or 5  
 Chroma—3 to 6  
 Texture of the fine-earth fraction—silt loam, silty clay loam, clay loam, or silty clay  
 Content of rock fragments—0 to 10 percent gravel  
 Reaction—very strongly acid to neutral

*Bt horizon (lower part) or Btg horizon:*

Hue—10R to 2.5Y  
 Value—4 to 7  
 Chroma—1 to 8  
 Texture of the fine-earth fraction—silty clay loam, silty clay, or clay  
 Content of rock fragments—0 to 20 percent gravel  
 Reaction—extremely acid to slightly alkaline

*2Bt, 2Btg, 2BC, or 2C horizon (if it occurs):*

Hue—7.5YR to 2.5Y  
 Value—4 to 6  
 Chroma—1 to 6  
 Texture of the fine-earth fraction—silty clay or clay  
 Content of rock fragments—35 to 70 percent gravel  
 Reaction—extremely acid to slightly alkaline

**Hootentown Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Stream terraces in river valleys

*Position on the landform:* Treads

*Parent material:* Silty alluvium

*Slope range:* 0 to 3 percent

*Elevation:* 860 feet

*Taxonomic classification:* Fine-silty, mixed, active, mesic Typic Paleudalfs

**Typical Pedon**

Hootentown silt loam, 0 to 3 percent slopes, rarely flooded; in an area of hayland; 32 feet north and 26 feet west of the southeast corner of sec. 1, T. 21 N., R. 33 W.; USGS Noel, Missouri, topographic quadrangle; UTM coordinates 4,048,355 meters Northing and 370,833 meters Easting, Zone 15, NAD 83:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; 5 percent subangular chert gravel; slightly acid; abrupt smooth boundary.

BA—5 to 10 inches; dark yellowish brown (10YR 4/4) silt loam; weak very fine subangular blocky structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few distinct brown (10YR 4/3) organic stains on faces of peds; strongly acid; clear smooth boundary.

Bt1—10 to 21 inches; brown (7.5YR 4/4) silt loam; moderate very fine and fine subangular blocky structure; friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few faint dark yellowish brown (10YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—21 to 32 inches; 70 percent brown (7.5YR 4/4) and 30 percent strong brown (7.5YR 4/6) silt loam; moderate very fine and fine subangular blocky structure; firm; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few distinct brown (7.5YR 4/4) clay films on faces of peds and few distinct dark brown (7.5YR 3/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt3—32 to 50 inches; strong brown (7.5YR 4/6) silt loam; moderate very fine and fine subangular blocky structure; firm; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; common distinct strong brown (7.5YR 4/6) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt4—50 to 61 inches; 60 percent strong brown (7.5YR 4/6) and 40 percent brown (7.5YR 4/4) silt loam; moderate very fine and fine subangular blocky structure; firm; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; common distinct strong brown

(7.5YR 4/6) clay films on faces of peds and very few distinct yellowish brown (10YR 5/4) skeletons on faces of peds; moderately acid; clear smooth boundary.

Bt5—61 to 80 inches; 50 percent strong brown (7.5YR 4/6) and 50 percent brown (7.5YR 4/4) silt loam; moderate very fine subangular blocky structure; firm; common very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few distinct strong brown (7.5YR 4/6) clay films on faces of peds and few distinct yellowish brown (10YR 5/4) skeletons on faces of peds; strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*A or Ap horizon:*

Hue—7.5YR or 10YR

Value—3 or 4

Chroma—3 or 4

Content of rock fragments—0 to 10 percent gravel

Reaction—strongly acid to slightly acid

Note—where value and chroma are 3, the horizon is less than 6 inches thick.

*BA horizon:*

Hue—7.5YR or 10YR

Value—3 or 4

Chroma—2 to 6

Content of rock fragments—0 to 5 percent

Reaction—strongly acid to neutral

*Bt horizon:*

Hue—5YR to 10YR

Value—3 to 5

Chroma—2 to 6

Texture of the fine-earth fraction—silt loam, silty clay loam, silty clay, clay loam, or loam

Content of rock fragments—0 to 25 percent

Reaction—strongly acid to neutral

### **Jollymill Series**

*Depth class:* Deep

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Hillsides or ridges

*Position on the landform:* Summits, backslopes

*Parent material:* Gravelly colluvium over slope alluvium over residuum derived from cherty limestone

*Slope range:* 1 to 60 percent

*Elevation:* 1,058 feet

*Taxonomic classification:* Loamy-skeletal, siliceous, semiactive, mesic Oxyaquic Hapludults

### **Typical Pedon**

Jollymill extremely gravelly silt loam, in an area of Jollymill-Crackerneck complex, karst, 3 to 8 percent slopes; in a stand of intermixed conifers and hardwoods; 1,554 feet north and 1,095 feet west of the southeast corner of sec. 27, T. 21 N., R. 34 W.; USGS South West City, Missouri, topographic quadrangle; UTM coordinates 4,043,164 meters Northing and 357,318 meters Easting, Zone 15, NAD 83:

Oa—0 to 2 inches; very dark grayish brown (10YR 3/2) (rubbed) highly decomposed plant material; weak fine granular structure; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; 25 percent subrounded chert gravel; very strongly acid; clear smooth boundary.

A—2 to 5 inches; brown (10YR 5/3) extremely gravelly silt loam; moderate fine granular structure; very friable; many very fine to medium roots throughout; many very fine and fine interstitial and tubular pores; 60 percent subrounded chert gravel and 15 percent subrounded tripoli paragravel; very strongly acid; clear smooth boundary.

E—5 to 13 inches; pale brown (10YR 6/3) extremely gravelly silt loam; moderate fine granular structure; very friable; many very fine to medium roots throughout; many very fine and fine interstitial and tubular pores; 60 percent subrounded chert gravel and 15 percent subrounded tripoli paragravel; very strongly acid; clear smooth boundary.

Bt1—13 to 17 inches; 55 percent yellowish brown (10YR 5/4) and 45 percent pale brown (10YR 6/3) extremely gravelly silt loam; moderate very fine and fine subangular blocky structure; friable; common coarse roots throughout and many very fine to medium roots throughout; many very fine and fine interstitial and tubular pores; very few faint yellowish brown (10YR 5/4) clay films on faces of peds; 50 percent subrounded chert gravel and 20 percent subrounded tripoli paragravel; very strongly acid; clear smooth boundary.

Bt2—17 to 22 inches; strong brown (7.5YR 4/6) very gravelly silty clay loam; moderate very fine and fine subangular blocky structure; firm; common coarse roots throughout and many very fine to medium roots throughout; many very fine and fine interstitial and tubular pores; few distinct light yellowish brown (10YR 6/4) silt coats on faces of peds and few distinct strong brown (7.5YR 4/6) clay films on faces of peds; 39 percent subrounded chert gravel and 16 percent subrounded tripoli paragravel; very strongly acid; clear smooth boundary.

2Bt3—22 to 32 inches; 75 percent strong brown (7.5YR 4/6) and 25 percent red (2.5YR 4/6) very gravelly clay; moderate very fine subangular blocky structure; very firm; common coarse roots throughout and many very fine to medium roots throughout; common fine interstitial pores; few distinct strong brown (7.5YR 4/6) clay films on faces of peds, few distinct red (2.5YR 4/6) clay films on faces of peds, and few prominent brown (10YR 5/3) skeletons on faces of peds; 13 percent subangular chert cobbles, 12 percent subangular tripoli paracobbles, 23 percent subangular chert gravel, and 22 percent subangular tripoli paragravel; very strongly acid; clear wavy boundary.

3Bt4—32 to 51 inches; 70 percent dusky red (10R 3/4) and 30 percent strong brown (7.5YR 4/6) extremely cobbly clay; moderate very fine and fine subangular blocky structure; very firm; common very fine and fine roots between peds; common fine interstitial pores; common prominent gray (10YR 5/1) skeletons on faces of peds, common prominent dusky red (10R 3/4) clay films on faces of peds, and few prominent gray (10YR 5/1) clay films on faces of peds; 27 percent subangular chert cobbles, 3 percent subangular tripoli paracobbles, 31 percent subangular chert gravel, and 4 percent subangular tripoli paragravel; extremely acid; abrupt smooth boundary.

3R—51 inches; bedrock.

### **Range in Characteristics**

*Depth to bedrock:* 40 to 60 inches

#### *A horizon:*

Hue—10YR

Value—3 to 5

Chroma—2 or 3

Texture of the fine-earth fraction—silt loam

Content of rock fragments—5 to 80 percent gravel, 0 to 2 percent cobbles

Reaction—very strongly acid to slightly acid

#### *E or BE horizon:*

Hue—10YR

Value—4 to 6

Chroma—3 to 6

Texture of the fine-earth fraction—silt loam or silt

Content of rock fragments—5 to 80 percent gravel, 0 to 2 percent cobbles

Reaction—very strongly acid to slightly acid

#### *Bt horizon:*

Hue—10YR, 7.5YR, or 5YR

Value—4 to 7

Chroma—3 to 6

Color of clay depletions (if they occur)—hue of 10YR, value of 4 to 7, and chroma of 1 or 2

Texture of the fine-earth fraction—silt loam or silty clay loam

Content of rock fragments—25 to 75 percent gravel, 0 to 20 percent cobbles

Reaction—very strongly acid or strongly acid

#### *2Bt or 3Bt horizon:*

Hue—10YR, 7.5YR, 5YR, 2.5YR, or 10R

Value—3 to 6

Chroma—4 to 8

Color of clay depletions—hue of 10YR or 7.5YR, value of 4 to 7, and chroma of 1 or 2

Texture of the fine-earth fraction—silty clay or clay

Content of rock fragments—20 to 75 percent gravel, 0 to 60 percent cobbles, 0 to 20 percent stones

Reaction—extremely acid or very strongly acid

### **Maple Grove Series**

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability class:* Slow

*Landform:* Interfluves

*Parent material:* Loess over colluvium over residuum derived from limestone

*Slope range:* 1 to 3 percent

*Elevation:* 1,060 feet

*Taxonomic classification:* Fine, mixed, active, thermic Oxyaquic Argiudolls

### **Typical Pedon**

Maple Grove silt loam, 1 to 3 percent slopes; in a pasture; 1,600 feet west and 1,250 feet south of the northeast corner of sec. 20, T. 28 N., R. 31 W.; Jasper County, Missouri; USGS Carthage, Missouri, topographic quadrangle; UTM coordinates 4,110,897 meters Northing and 381,441 meters Easting:

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) (crushed) silt loam, dark grayish brown (10YR 4/2) (crushed) dry; moderate medium subangular blocky structure parting to moderate fine granular; very friable; many very fine and fine roots; many very fine and fine tubular pores; 1 percent rounded chert gravel; slightly acid; clear smooth boundary.

A—6 to 11 inches; very dark grayish brown (10YR 3/2) (crushed) silt loam, grayish brown (10YR 5/2) (crushed) dry; moderate fine subangular blocky structure parting to weak fine granular; very friable; common very fine and fine roots; many very fine and fine tubular pores; 1 percent rounded

- chert gravel; moderately acid; abrupt smooth boundary.
- 2Bt1—11 to 17 inches; 60 percent brown (10YR 4/3) (interior) and 40 percent red (2.5YR 4/8) (interior) silty clay loam; moderate fine prismatic structure parting to strong fine angular blocky; very firm, moderately sticky and moderately plastic; common very fine and fine roots between peds; common very fine and fine interstitial and tubular pores; many prominent continuous brown (10YR 4/3) clay films on faces of peds, few prominent discontinuous yellowish red (5YR 4/6) clay films on faces of peds, and very few distinct continuous very dark grayish brown (10YR 3/2) organic coats on faces of peds and in pores; many fine and medium irregular red (2.5YR 4/8) masses of iron accumulation throughout and few fine rounded black (N 2/0) masses of iron-manganese accumulation throughout; 1 percent rounded chert gravel; moderately acid; clear smooth boundary.
- 2Bt2—17 to 27 inches; dark yellowish brown (10YR 4/4) (interior) silty clay; moderate fine prismatic structure parting to strong fine subangular blocky; very firm, moderately sticky and moderately plastic; few very fine and fine roots between peds; common very fine and fine interstitial and tubular pores; many prominent continuous grayish brown (10YR 5/2) clay films on faces of peds and few prominent discontinuous yellowish red (5YR 4/6) clay films on faces of peds; common fine irregular black (N 2/0) masses of iron-manganese accumulation between peds, common fine rounded black (N 2/0) iron-manganese concretions throughout, and common fine irregular red (2.5YR 4/8) masses of iron accumulation throughout; 1 percent rounded chert gravel; strongly acid; clear wavy boundary.
- 3Bt3—27 to 46 inches; dark yellowish brown (10YR 4/6) (interior) silty clay loam; moderate fine subangular blocky structure; very firm, very sticky and very plastic; few very fine and fine roots between peds; common very fine and fine interstitial and tubular pores; common prominent continuous very dark grayish brown (10YR 3/2) clay films on faces of peds, few prominent continuous dark grayish brown (10YR 4/2) clay films on faces of peds, and few prominent patchy dark yellowish brown (10YR 4/6) clay films on faces of peds; common fine irregular black (N 2/0) masses of iron-manganese accumulation between peds, common fine rounded black (N 2/0) masses of iron-manganese accumulation throughout, and few fine irregular red (2.5YR 4/8) masses of iron accumulation throughout; 1 percent rounded chert gravel; slightly acid; clear wavy boundary.
- 4Bt4—46 to 62 inches; 90 percent yellowish brown (10YR 5/4) (interior), 1 percent light brownish gray (10YR 6/2) (interior), and 9 percent yellowish brown (10YR 5/8) (interior) very stony clay; strong fine angular blocky structure; very firm, very sticky and very plastic; few very fine and fine interstitial and tubular pores; very few prominent discontinuous dark yellowish brown (10YR 4/6) clay films on faces of peds, many prominent continuous pale brown (10YR 6/3) clay films on faces of peds, and few prominent continuous yellowish brown (10YR 5/4) clay films on faces of peds; many fine irregular black (N 2/0) masses of iron-manganese accumulation between peds, common fine irregular black (N 2/0) masses of iron accumulation between peds, and few fine irregular red (2.5YR 4/8) masses of iron accumulation between peds; 20 percent angular chert gravel and 30 percent subrounded chert stones; neutral; diffuse wavy boundary.
- 4Bt5—62 to 80 inches; 95 percent yellowish brown (10YR 5/4) (interior) and 5 percent gray (10YR 6/1) (interior) gravelly clay; strong fine angular blocky structure; very firm, very sticky and very plastic; few very fine and fine interstitial and tubular pores; many prominent continuous yellowish brown (10YR 5/4) clay films on faces of peds and few prominent continuous gray (10YR 6/1) clay films on faces of peds; common fine irregular black (N 2/0) masses of iron-manganese accumulation between peds, common fine irregular strong brown (7.5YR 5/8) masses of iron accumulation throughout, and few fine rounded red (2.5YR 4/8) masses of iron accumulation throughout; 18 percent angular chert gravel and 2 percent angular chert cobbles; slightly alkaline.

### **Range in Characteristics**

*Thickness of the mollic epipedon:* 10 to 20 inches

*Depth to the argillic horizon:* 6 to 19 inches

*Depth to bedrock:* 60 to more than 80 inches

*Ap horizon:*

Chroma—1 to 3

Content of rock fragments—0 to 1 percent gravel

Reaction—slightly acid or neutral

*A horizon:*

Content of rock fragments—0 to 5 percent

Reaction—moderately acid to neutral

**2Bt horizon:**

Hue—2.5YR to 10YR  
 Value—3 to 5  
 Chroma—3 to 8  
 Redoximorphic features—iron concretions, iron-manganese concretions, masses of iron accumulation, or masses of iron-manganese accumulation  
 Texture of the fine-earth fraction—silty clay loam or silty clay  
 Content of rock fragments—0 to 3 percent  
 Reaction—strongly acid to neutral

**3Bt horizon:**

Hue—5YR to 2.5Y  
 Value—4 to 6  
 Chroma—1 to 8  
 Redoximorphic features—iron-manganese concretions, masses of iron accumulation, or masses of iron-manganese accumulation  
 Content of rock fragments—0 to 50 percent  
 Reaction—slightly acid to slightly alkaline

**4Bt horizon:**

Hue—7.5YR or 10YR  
 Value—5 or 6  
 Chroma—1 to 8  
 Redoximorphic features—iron-manganese concretions, masses of iron accumulation, or masses of iron-manganese accumulation  
 Content of rock fragments—20 to 80 percent  
 Reaction—neutral or slightly alkaline

**Moko Series**

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Hillsides and structural benches

*Position on the landform:* Shoulders, backslopes, summits

*Parent material:* Gravelly residuum derived from dolostone or cherty limestone

*Slope range:* 3 to 100 percent

*Elevation:* 998 feet

*Taxonomic classification:* Loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls

**Typical Pedon**

Moko extremely gravelly clay loam, in an area of Moko-Blueeye-Rock outcrop complex, 8 to 15 percent slopes; in savanna rangeland; 1,917 feet west and 740 feet north of the southeast corner of sec. 16, T. 21 N., R. 31 W.; USGS Jane, Missouri, topographic quadrangle; UTM coordinates 4,044,617 meters

Northing and 384,451 meters Easting, Zone 15, NAD 83:

A—0 to 11 inches; very dark brown (10YR 2/2) (rubbed) extremely gravelly clay loam; moderate fine and medium granular structure; very friable; common coarse roots and many very fine to medium roots; many very fine and fine interstitial and tubular pores; 15 percent chert cobbles and 45 percent subrounded chert gravel; neutral; abrupt smooth boundary.

R—11 inches; bedrock.

**Range in Characteristics**

*Depth to bedrock:* 4 to 20 inches

*Other features:* The mollic surface layer makes up at least one-third of the total thickness of the solum. Also, the R layer consists of hard, level-bedded limestone or dolostone that is commonly fractured, at least in the upper part. Cracks up to 10 inches deep, 1/2 inch to 2 inches wide, and 2 to 5 feet apart are filled with material from the A horizon. Chert occurs as thin beds or as nodules in the limestone and dolostone. The amount of chert varies both vertically and laterally.

*Note:* Individual horizons may contain less than 35 percent rock fragments.

**A horizon:**

Value—2 or 3

Chroma—1 or 2

Texture of the fine-earth fraction—silt loam, silty clay loam, loam, sandy clay loam, or clay loam

Content of rock fragments—35 to 75 percent

gravel, cobbles, channers, flagstones, or stones  
 Reaction—moderately acid to moderately alkaline

**Noark Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Divides and ridges

*Position on the landform:* Shoulders, summits

*Parent material:* Gravelly colluvium over residuum derived from cherty limestone

*Slope range:* 3 to 15 percent

*Elevation:* 1,185 feet

*Taxonomic classification:* Clayey-skeletal, mixed, semiactive, mesic Typic Paleudults

**Typical Pedon**

Noark very gravelly silt loam, in an area of Clarksville-Noark complex, 3 to 15 percent slopes; 1,849 feet east and 1,802 feet north of the southwest corner of sec.

31, T. 22 N., R. 31 W.; USGS Jane, Missouri, topographic quadrangle; UTM coordinates 4,049,996 meters Northing and 381,160 meters Easting, Zone 15, NAD 83:

A—0 to 4 inches; brown (10YR 4/3 and 5/3) very gravelly silt loam; weak fine granular structure; very friable; many very fine and fine roots and many medium and coarse roots; many fine and medium interstitial and tubular pores; 55 percent subrounded chert gravel; very strongly acid; clear smooth boundary.

E—4 to 10 inches; yellowish brown (10YR 5/4) very gravelly silt; weak very fine subangular blocky structure; very friable; many very fine and fine roots and many medium and coarse roots; many fine and medium interstitial and tubular pores; very few black stains; 5 percent subrounded chert cobbles and 40 percent subrounded chert gravel; very strongly acid; clear smooth boundary.

Bt1—10 to 16 inches; yellowish brown (10YR 5/4 and 5/6) extremely cobbly silt loam; weak very fine and fine subangular blocky structure; friable; common very fine and fine roots, common medium and coarse roots, and common very coarse roots; common fine interstitial pores; very few faint clay films on faces of pedis and very few black stains; 25 percent subrounded chert cobbles and 50 percent subrounded chert gravel; very strongly acid; clear smooth boundary.

Bt2—16 to 20 inches; yellowish brown (10YR 5/4) extremely gravelly silt loam; weak very fine and fine subangular blocky structure; friable; common very fine and fine roots and common medium roots; common fine interstitial pores; very few faint clay films on faces of pedis; 65 percent subrounded chert gravel; very strongly acid; clear smooth boundary.

2Bt3—20 to 44 inches; dark red (2.5YR 3/6) and brown (7.5YR 4/4) extremely cobbly clay; common fine brown (10YR 5/3) mottles; moderate very fine and fine subangular blocky structure; firm; common very fine and fine roots; common medium and coarse constricted tubular pores; common faint clay films on faces of pedis; 15 percent angular chert gravel, 10 percent angular chert stones, and 50 percent angular chert cobbles; very strongly acid; gradual smooth boundary.

2Bt4—44 to 60 inches; dark reddish brown (2.5YR 3/4) gravelly clay; common coarse prominent gray (5Y 6/1) mottles; moderate medium subangular blocky structure parting to strong very fine and fine angular blocky; very firm; common very fine and fine roots; common medium and coarse

constricted tubular pores; many faint clay films on faces of pedis and few prominent yellowish brown (10YR 5/4) clay films on tops of columns; 25 percent angular chert gravel; very strongly acid; gradual smooth boundary.

3Bt5—60 to 80 inches; dark reddish brown (2.5YR 3/4) and red (2.5YR 4/8) extremely gravelly clay; common coarse prominent light gray (10YR 7/1) mottles; weak fine subangular blocky structure; very firm; common fine roots; many faint clay films on faces of pedis and few distinct gray (10YR 5/1) clay films on tops of columns; 10 percent angular chert cobbles and 70 percent angular chert gravel; very strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* 60 to more than 80 inches

*A or Ap horizon:*

Value—3 to 5

Chroma—2 to 4

Content of rock fragments—15 to 60 percent; 15 to 60 percent gravel, 0 to 15 percent cobbles

Reaction—very strongly acid to slightly acid

Note—where value is 3 or less, the horizon is less than 6 inches thick.

*E horizon:*

Value—5 or 6

Chroma—3 or 4

Content of rock fragments—15 to 60 percent; 15 to 60 percent gravel and 0 to 10 percent cobbles

Reaction—very strongly acid to slightly acid

*BE or Bt horizon:*

Hue—5YR to 10YR

Value—4 or 5

Chroma—4 to 6

Texture of the fine-earth fraction—silt loam or silty clay loam

Content of rock fragments—35 to 60 percent; 20 to 60 percent gravel and 0 to 20 percent cobbles

Reaction—extremely acid to moderately acid

*2Bt or 3Bt horizon:*

Hue—10R to 7.5YR

Value—3 to 5

Chroma—4 to 8

Texture of the fine-earth fraction—silty clay or clay

Content of rock fragments—25 to 80 percent; 15 to 80 percent gravel and 0 to 50 percent cobbles

Reaction—extremely acid to strongly acid

## Paintbrush Series

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability class:* Slow

*Landform:* Structural benches

*Position on the landform:* Summits

*Parent material:* Loamy colluvium over gravelly residuum derived from cherty limestone

*Slope range:* 1 to 3 percent

*Elevation:* 1,040 feet

*Taxonomic classification:* Fine-loamy, mixed, active, mesic Fragiaquic Paleudalfs

### Typical Pedon

Paintbrush silt loam (fig. 30), in an area of Paintbrush-Friendly complex, 1 to 3 percent slopes; in hayland; 431 feet east and 2,051 feet north of the southwest corner of sec. 24, T. 21 N., R. 34 W.; USGS South West City, Missouri, topographic quadrangle; UTM coordinates 4,044,824 meters Northing and 359,544 meters Easting, Zone 15, NAD 83:

Ap1—0 to 3 inches; very dark grayish brown (10YR 3/2) (rubbed) silt loam; moderate medium subangular blocky structure parting to moderate fine granular; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; common fine irregular dark brown (7.5YR 3/4) masses of oxidized iron throughout; 1 percent subangular chert gravel; moderately acid; clear smooth boundary.

Ap2—3 to 8 inches; very dark grayish brown (10YR 3/2) (rubbed) silt loam; moderate medium subangular blocky structure parting to moderate fine granular; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few fine irregular dark yellowish brown (10YR 3/4) masses of oxidized iron throughout; 1 percent subangular chert gravel; slightly acid; clear smooth boundary.

BE—8 to 14 inches; yellowish brown (10YR 5/4) silt loam; moderate fine subangular blocky structure; friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few distinct yellowish brown (10YR 5/4) clay films on faces of peds and in pores and few distinct very dark brown (10YR 2/2) organic stains on faces of peds; 1 percent subangular chert gravel; strongly acid; clear smooth boundary.

Bt1—14 to 22 inches; yellowish brown (10YR 5/4) silty clay loam; strong fine subangular blocky structure; firm; common very fine and fine roots throughout; common very fine and fine interstitial and tubular



Figure 30.—Profile of a Paintbrush soil.

pores; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and few distinct yellowish brown (10YR 5/4) clay films on faces of peds; common fine irregular red (2.5YR 4/8) masses of oxidized iron throughout; 1 percent subangular chert gravel; very strongly acid; clear smooth boundary.

Bt2—22 to 29 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky

structure; firm; few very fine and fine roots throughout; common very fine and fine interstitial and tubular pores; common distinct yellowish brown (10YR 5/4) clay films on faces of peds, few distinct light brownish gray (10YR 6/2) clay films on faces of peds, few distinct strong brown (7.5YR 4/6) clay films on faces of peds, and few distinct light brownish gray (10YR 6/2) skeletons on faces of peds; common fine irregular yellowish red (5YR 5/8) masses of oxidized iron throughout; common fine irregular red (2.5YR 4/8) masses of oxidized iron throughout; 3 percent subangular chert gravel; very strongly acid; clear smooth boundary.

**2Btx**—29 to 37 inches; 80 percent yellowish brown (10YR 5/8), 15 percent brown (7.5YR 5/4), and 5 percent red (2.5YR 4/8) extremely gravelly silty clay loam; strong medium subangular blocky structure; very firm; few very fine and fine roots between peds; common very fine and fine interstitial and tubular pores; common distinct yellowish red (5YR 5/8) clay films on faces of peds, few distinct light brownish gray (10YR 6/2) skeletons on faces of peds, few distinct yellowish red (5YR 4/6) clay films on faces of peds, and few distinct light brownish gray (10YR 6/2) clay films on faces of peds; 5 percent subangular chert cobbles and 55 percent subangular chert gravel; strongly acid; clear smooth boundary.

**3Bt**—37 to 80 inches; 75 percent red (2.5YR 4/8) and 25 percent strong brown (7.5YR 5/8) very gravelly clay; strong fine subangular blocky structure; very firm; few very fine and fine roots between peds; common very fine and fine interstitial and tubular pores; many distinct dark yellowish brown (10YR 4/6) clay films on faces of peds, few distinct light brownish gray (10YR 6/2) skeletons on faces of peds, and few distinct light brownish gray (10YR 6/2) clay films on faces of peds; common fine irregular black (N 2/0) iron-manganese masses throughout; 5 percent subangular chert cobbles and 35 percent subangular chert gravel; strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*Other features:* Some pedons in areas that have not been cultivated have an E horizon. Also, some pedons have a BE horizon.

*A horizon:*

Hue—7.5YR or 10YR

Value—2 or 3

Chroma—2 or 3

Texture of the fine-earth fraction—silt loam or loam

Content of rock fragments—0 to 10 percent gravel, 0 to 5 percent cobbles

Reaction—strongly acid to neutral

*Bt horizon:*

Hue—10YR to 5YR

Value—4 or 5

Chroma—3 to 6

Note—most pedons have mottles with higher value and chroma; mottles with chroma of 2 or less can occur within a depth of 30 inches

Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam

Content of rock fragments—0 to 10 percent gravel, 0 to 5 percent cobbles

Reaction—slightly acid to very strongly acid

*2Btx horizon:*

Hue—10YR to 2.5YR

Value—4 to 7

Chroma—1 to 8

Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam; variable moderately expressed brittleness in the fine material

Content of rock fragments—15 to 55 percent gravel, 0 to 40 percent cobbles; chert gravel is commonly horizontally oriented

Reaction—strongly acid to slightly acid

*3Bt horizon:*

Hue—10R to 7.5YR

Value—3 to 6

Chroma—4 to 8; mottles with lower chroma in some pedons

Texture of the fine-earth fraction—clay or silty clay

Content of rock fragments—5 to 35 percent gravel, 0 to 5 percent cobbles

Reaction—strongly acid to neutral

### **Pembroke Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Sinkholes on structural benches

*Parent material:* Fine-silty colluvium over residuum derived from cherty limestone

*Slope range:* 1 to 3 percent

*Elevation:* 1,000 feet

*Taxonomic classification:* Fine-silty, mixed, active, mesic Mollic Paleudalfs

### **Typical Pedon**

Pembroke silt loam, karst, 1 to 3 percent slopes, ponded; in an area of tame pastureland; 192 feet north

and 662 feet west of the southeast corner of sec. 10, T. 21 N., R. 34 W.; USGS South West City, Missouri, topographic quadrangle; UTM coordinates 4,047,540 meters Northing and 357,731 meters Easting, Zone 15, NAD 83:

**Ap**—0 to 8 inches; very dark grayish brown (10YR 3/2) (broken face) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; many fine roots throughout and many very fine roots throughout; common fine high-continuity tubular, common fine high-continuity interstitial, and many very fine high-continuity tubular pores; 1 percent subrounded chert gravel; strongly acid; abrupt smooth boundary.

**A**—8 to 15 inches; dark brown (10YR 3/3) (broken face) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many fine roots throughout and many very fine roots throughout; many fine high-continuity tubular, many very fine high-continuity tubular, and common very fine high-continuity interstitial pores; 2 percent subrounded chert gravel; strongly acid; clear smooth boundary.

**BA**—15 to 19 inches; 60 percent dark yellowish brown (10YR 4/4) (broken face) and 40 percent dark brown (10YR 3/3) (broken face) silt loam; moderate very fine subangular blocky structure; friable; many fine roots throughout and many very fine roots throughout; many fine high-continuity tubular, common fine high-continuity interstitial, and common very fine high-continuity tubular pores; 2 percent subrounded chert gravel; strongly acid; clear smooth boundary.

**Bt1**—19 to 28 inches; reddish brown (5YR 4/4) (broken face) silty clay loam; moderate fine subangular blocky structure; firm; common fine roots throughout and many very fine roots throughout; many fine moderate-continuity, common fine high-continuity, and common very fine moderate-continuity pores; few distinct dark brown (10YR 3/3) organoargillans on all faces of peds; few fine prominent spherical black (N 2/0) iron-manganese masses throughout; 3 percent subrounded chert gravel; strongly acid; clear smooth boundary.

**2Bt2**—28 to 38 inches; yellowish red (5YR 4/6) (broken face) silty clay loam; moderate fine subangular blocky and moderate medium subangular blocky structure; firm; common fine roots throughout and common very fine roots throughout; common fine high-continuity tubular, common fine high-continuity interstitial, and common very fine moderate-continuity tubular pores; common distinct reddish brown (5YR 4/4)

clay films on all faces of peds; few fine prominent spherical black (N 2/0) iron-manganese masses throughout; 2 percent subangular chert gravel and 3 percent subrounded chert gravel; strongly acid; clear smooth boundary.

**2Bt3**—38 to 60 inches; yellowish red (5YR 4/6) (broken face) silty clay loam; weak fine subangular blocky structure parting to moderate very fine subangular blocky; firm; few fine roots throughout and common very fine roots throughout; common fine high-continuity tubular, common fine high-continuity interstitial, and common very fine moderate-continuity tubular pores; common distinct reddish brown (5YR 4/4) clay films on all faces of peds and few prominent brown (7.5YR 4/4) skeletal on surfaces along pores; few fine prominent spherical black (N 2/0) iron-manganese masses throughout; 2 percent subangular chert gravel and 3 percent subrounded chert gravel; strongly acid; clear smooth boundary.

**2Bt4**—60 to 69 inches; 55 percent strong brown (7.5YR 4/6) (broken face) and 45 percent brown (7.5YR 5/4) (broken face) gravelly silty clay loam; weak fine subangular blocky structure; firm; few fine roots throughout and common very fine roots throughout; many fine high-continuity interstitial, common fine high-continuity tubular, and common very fine moderate-continuity tubular pores; few distinct strong brown (7.5YR 4/6) clay films on all faces of peds and few faint brown (7.5YR 5/3) skeletal on surfaces along pores; common fine prominent spherical black (N 2/0) manganese masses throughout; common fine distinct spherical yellowish red (5YR 4/6) iron-manganese masses throughout; 15 percent subrounded chert gravel and 15 percent subangular chert gravel; strongly acid; abrupt smooth boundary.

**3R**—69 to 80 inches; bedrock.

### ***Range in Characteristics***

*Depth to bedrock:* 60 to more than 80 inches

*Other features:* The content of soil particles larger than very fine sand and gravel fragments averages less than 15 percent in the particle-size control section.

*Ap horizon:*

Hue—10YR to 5YR

Chroma—2 or 3

Content of rock fragments—0 to 5 percent gravel

Reaction—very strongly acid to neutral

*Bt horizon:*

Hue—7.5YR to 2.5YR

Value—4 or 5

Chroma—4 to 8

Texture of the fine-earth fraction—silt loam or silty clay loam

Content of rock fragments—0 to 5 percent gravel

Reaction—very strongly acid to moderately acid

*2Bt horizon (if it occurs):*

Hue—2.5YR to 10R

Value—4 or 5

Chroma—4 to 8

Texture of the fine earth fraction—silty clay loam or silty clay

Content of rock fragments—0 to 15 percent gravel

Reaction—very strongly acid to moderately acid

*BC horizon (if it occurs):*

Hue—2.5YR to 10R

Value—3 or 4

Chroma—4 to 8

Mottles (if they occur)—few or common in shades of brown and gray

Texture of the fine-earth fraction—silty clay loam, silty clay, or clay

Content of rock fragments—0 to 15 percent gravel

Reaction—very strongly acid to moderately acid

## **Pinerun Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Flood-plain steps

*Parent material:* Gravelly alluvium derived from cherty limestone

*Slope range:* 0 to 3 percent

*Elevation:* 1,210 feet

*Taxonomic classification:* Loamy-skeletal, siliceous, active, mesic Typic Hapludalfs

### **Typical Pedon**

Pinerun silt loam, in an area of Cedargap, frequently flooded-Pinerun, occasionally flooded, complex, 0 to 3 percent slopes; in a row-cropped field; 82 feet south and 756 feet east of the northwest corner of sec. 12, T. 23 N., R. 30 W.; USGS Bethpage, Missouri, topographic quadrangle; UTM coordinates 4,066,062 meters Northing and 399,326 meters Easting, Zone 15, NAD 83:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; weak very fine subangular blocky structure parting to moderate fine granular; very friable; many very fine and fine roots; many very fine interstitial and tubular pores; 5 percent subrounded chert gravel; neutral; abrupt smooth boundary.

Bt1—9 to 17 inches; 60 percent strong brown (7.5YR 4/6) and 40 percent brown (10YR 4/3) gravelly silt loam; weak very fine subangular blocky structure; friable; many very fine and fine roots; many very fine interstitial and tubular pores; very few faint strong brown (7.5YR 4/6) clay films on all faces of peds; 16 percent subrounded chert gravel; clear smooth boundary.

Bt2—17 to 30 inches; strong brown (7.5YR 4/6) extremely gravelly clay loam; weak fine subangular blocky structure; firm; many very fine and fine roots; common very fine interstitial pores; few prominent strong brown (7.5YR 4/6) clay films on faces of peds; 1 percent subrounded chert cobbles and 70 percent subrounded chert gravel; clear wavy boundary.

Bt3—30 to 57 inches; 80 percent reddish brown (5YR 4/4) and 20 percent brown (7.5YR 4/3) extremely gravelly clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots; common very fine interstitial pores; common prominent reddish brown (5YR 4/4) clay films on faces of peds; 5 percent subrounded chert cobbles and 70 percent subangular chert gravel; clear smooth boundary.

Btb—57 to 80 inches; 60 percent reddish brown (5YR 4/4) and 40 percent strong brown (7.5YR 5/8) extremely gravelly clay; moderate fine subangular blocky structure; very firm; common very fine and fine roots; few very fine interstitial pores; many prominent dark reddish brown (5YR 3/3) organoargillans on faces of peds; 5 percent subrounded chert cobbles and 65 percent subangular chert gravel.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*Reaction:* Strongly acid to neutral

*Other features:* Some pedons have a 2Bt horizon. This horizon, if it occurs, has colors and textures similar to those of the Btb horizon. The content of rock fragments in the 2Bt horizon ranges from 25 to 80 percent (25 to 80 percent gravel and 0 to 20 percent cobbles).

*A or Ap horizon:*

Hue—7.5YR or 10YR

Value—3 or 4

Chroma—2 to 6

Content of rock fragments—5 to 50 percent; 5 to 50 percent gravel and 0 to 15 percent cobbles

*E or BE horizon (if it occurs):*

Hue—7.5YR or 10YR

Value—4 or 5  
 Chroma—2 to 4  
 Content of rock fragments—30 to 45 percent

**BA horizon:**

Hue—5YR to 10YR  
 Value—4 or 5  
 Chroma—4 to 6  
 Texture of the fine-earth fraction—silt loam or loam  
 Content of rock fragments—15 to 50 percent; 15 to 50 percent gravel and 0 to 20 percent cobbles

**Bt horizon:**

Hue—5YR to 10YR  
 Value—3 to 5  
 Chroma—4 to 6  
 Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam  
 Content of rock fragments—35 to 80 percent; 35 to 80 percent gravel and 0 to 40 percent cobbles

**Btb horizon:**

Hue—2.5YR to 10YR  
 Value—3 to 5  
 Chroma—2 to 5  
 Note—where chroma is more than 4 in the lower horizons, hue is 10YR.  
 Texture of the fine-earth fraction—loam, silt loam, clay loam, silty clay loam, sandy clay loam, silty clay, or clay  
 Content of rock fragments—50 to 80 percent; 50 to 80 percent gravel and 0 to 45 percent cobbles

**Pomme Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Strath terraces and structural benches

*Position on the landform:* Footslopes

*Parent material:* Loamy colluvium over gravelly colluvium over residuum derived from cherty limestone

*Slope range:* 2 to 15 percent

*Elevation:* 822 feet

*Taxonomic classification:* Fine-loamy, mixed, semiactive, mesic Typic Paleudalfs

**Typical Pedon**

Pomme silt loam, 2 to 5 percent slopes; in hayland; 1,954 feet north and 2,125 feet east of the southwest corner of sec. 9, T. 21 N., R. 33 W.; USGS South West

City, Missouri, topographic quadrangle; UTM coordinates 4,047,728 meters Northing and 365,071 meters Easting, Zone 15, NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; 10 percent subrounded chert gravel; slightly acid; abrupt smooth boundary.

A—7 to 12 inches; brown (10YR 4/3) silt loam; moderate fine granular structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; 10 percent subrounded chert gravel; slightly acid; clear smooth boundary.

BA—12 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; weak very fine and fine subangular blocky structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few prominent brown (10YR 4/3) organic stains on faces of peds; 10 percent subrounded chert gravel; moderately acid; clear smooth boundary.

Bt1—17 to 33 inches; brown (7.5YR 4/4) silt loam; moderate fine subangular blocky structure; friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few distinct brown (7.5YR 4/4) clay films on faces of peds and few prominent brown (10YR 4/3) organic stains on faces of peds; 7 percent subrounded chert gravel; slightly acid; clear smooth boundary.

2Bt2—33 to 55 inches; yellowish red (5YR 4/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; few prominent yellowish red (5YR 4/6) clay films on faces of peds, few prominent dark reddish brown (5YR 3/4) clay films on faces of peds, and few prominent black (N 2/0) black stains on faces of peds; 12 percent subrounded chert gravel; moderately acid; clear smooth boundary.

2Bt3—55 to 80 inches; yellowish red (5YR 4/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine and fine roots throughout; common very fine and fine interstitial and tubular pores; common prominent yellowish red (5YR 4/6) clay films on faces of peds, few prominent light brown (7.5YR 6/4) silt coats on faces of peds, and few prominent dark reddish brown (5YR 3/4) clay films on faces of peds; 20 percent subrounded chert gravel; very strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*A or Ap horizon:*

Hue—7.5YR or 10YR

Value—3 or 4

Chroma—2 to 6

Texture of the fine-earth fraction—loam, silt loam, or silty clay loam

Content of rock fragments—0 to 25 percent; 0 to 20 percent gravel and 0 to 5 percent cobbles

Reaction—very strongly acid to neutral

*Bt horizon:*

Hue—5YR to 10YR

Value—3 to 5

Chroma—4 to 6

Texture of the fine-earth fraction—clay loam, silt loam, or silty clay loam

Content of rock fragments—0 to 35 percent; 0 to 30 percent gravel and 0 to 5 percent cobbles

Reaction—strongly acid to neutral

*2Bt horizon:*

Hue—10R to 7.5YR

Value—3 to 6

Chroma—4 to 6

Texture of the fine-earth fraction—silt loam, loam, clay loam, or silty clay loam

Content of rock fragments—5 to 70 percent; 5 to 60 percent gravel and 0 to 25 percent cobbles

Reaction—very strongly acid to neutral

*3Bt or 4Bt horizon (if it occurs):*

Hue—2.5YR to 7.5YR

Value—3 to 6

Chroma—6 to 8

Texture of the fine-earth fraction—clay, silty clay, clay loam, silty clay loam, loam, or silt loam

Content of rock fragments—20 to 75 percent; 20 to 70 percent gravel and 2 to 30 percent cobbles

Reaction—very strongly acid to neutral

### **Rueter Series**

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability class:* Moderate

*Landform:* Hillsides and structural benches

*Position on the landform:* Backslopes

*Parent material:* Gravelly colluvium over residuum derived from cherty limestone

*Slope range:* 3 to 60 percent

*Elevation:* 1,150 feet

*Taxonomic classification:* Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs

### **Typical Pedon**

Rueter extremely gravelly silt loam, in an area of Rueter-Goss-Jollymill complex, 15 to 35 percent slopes; in a stand of hardwoods; 729 feet east and 1,751 feet north of the southwest corner of sec. 15, T. 22 N., R. 31 W.; USGS McNatt, Missouri, topographic quadrangle; UTM coordinates 4,054,544 meters Northing and 386,855 meters Easting, Zone 15, NAD 83:

A—0 to 4 inches; brown (10YR 5/3) extremely gravelly silt loam; weak very fine granular structure; very friable; many very fine and fine roots throughout, many medium and coarse roots throughout, and many very coarse roots throughout; many very fine interstitial and tubular pores; 75 percent subrounded chert gravel; very strongly acid; clear smooth boundary.

E—4 to 10 inches; yellowish brown (10YR 5/4 and 5/6) extremely gravelly silt loam; weak very fine granular structure; very friable; many very fine and fine roots throughout, many medium and coarse roots throughout, and many very coarse roots throughout; many very fine interstitial and tubular pores; many faint pale brown (10YR 6/3) silt coats on faces of peds; 70 percent subrounded chert gravel; very strongly acid; clear smooth boundary.

BE—10 to 18 inches; yellowish brown (10YR 5/4) extremely gravelly silt loam; weak very fine granular structure; friable; many very fine and fine roots throughout, many medium and coarse roots throughout, and common very coarse roots throughout; many very fine interstitial pores; many faint brown (10YR 5/3) silt coats on faces of peds; 2 percent subrounded chert cobbles and 75 percent subrounded chert gravel; very strongly acid; clear wavy boundary.

Bt1—18 to 33 inches; strong brown (7.5YR 5/6) extremely gravelly silty clay loam; weak very fine subangular blocky structure; friable; many very fine and fine roots throughout and common medium roots throughout; many very fine interstitial pores; common distinct brown (10YR 5/3) silt coats on faces of peds, few faint strong brown (7.5YR 5/6) clay films on faces of peds, and very few distinct yellowish red (5YR 5/8) iron stains on faces of peds; 5 percent subangular chert cobbles and 75 percent subangular chert gravel; strongly acid; clear wavy boundary.

2Bt2—33 to 46 inches; 60 percent dark red (2.5YR 3/6) and 40 percent yellowish red (5YR 5/6) extremely gravelly silty clay; moderate very fine

subangular blocky structure; firm; common very fine and fine roots throughout; common very fine interstitial pores; common faint dark red (2.5YR 3/6) clay films on faces of peds and common distinct strong brown (7.5YR 5/6) silt coats on faces of peds; 2 percent angular chert cobbles and 62 percent angular chert gravel; strongly acid; clear wavy boundary.

2Bt3—46 to 80 inches; red (2.5YR 4/6) very gravelly clay; strong fine subangular blocky structure; very firm; common very fine and fine roots throughout; common very fine interstitial pores; many faint red (2.5YR 4/6) clay films on faces of peds and very few prominent light brown (7.5YR 6/4) silt coats on faces of peds; 58 percent angular chert gravel; very strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

#### *A or Ap horizon:*

Hue—10YR

Value—3 to 5

Chroma—1 to 4

Texture of the fine-earth fraction—loam, silt loam, or silt

Content of rock fragments—15 to 80 percent; 15 to 80 percent gravel and 0 to 15 percent cobbles

Reaction—moderately acid to extremely acid

#### *E horizon:*

Hue—7.5YR or 10YR

Value—4 to 7

Chroma—2 to 6

Texture of the fine-earth fraction—loam, silt loam, or silt

Content of rock fragments—15 to 80 percent; 15 to 80 percent gravel and 0 to 25 percent cobbles

Reaction—moderately acid to very strongly acid

#### *BE horizon:*

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—2 to 6

Texture of the fine-earth fraction—silt loam, sandy loam, loam, or silt

Content of rock fragments—20 to 75 percent; 20 to 75 percent gravel and 0 to 10 percent cobbles

Reaction—moderately acid to extremely acid

#### *Bt horizon:*

Hue—2.5YR to 10YR

Value—3 to 6

Chroma—3 to 8

Texture of the fine-earth fraction—silt loam, silty clay loam, loam, clay loam, sandy clay loam, or fine sandy loam

Content of rock fragments—25 to 85 percent; 25 to 85 percent gravel, 0 to 50 percent cobbles, 0 to 50 percent stones

Reaction—moderately acid to extremely acid

#### *2Bt or 3Bt horizon:*

Hue—10R to 10YR

Value—3 to 7

Chroma—1 to 8

Texture of the fine-earth fraction—silty clay loam, clay loam, silty clay, or clay

Content of rock fragments—5 to 85 percent; 5 to 85 percent gravel, 0 to 80 percent cobbles, 0 to 40 percent stones

Reaction—slightly acid to extremely acid

### **Sonsac Series**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability class:* Moderate

*Landform:* Hillsides

*Position on the landform:* Backslopes

*Parent material:* Gravelly colluvium over residuum derived from cherty limestone

*Slope range:* 15 to 60 percent

*Elevation:* 1,020 feet

*Taxonomic classification:* Clayey-skeletal, mixed, active, mesic Typic Hapludalfs

### **Typical Pedon**

Sonsac extremely gravelly silt loam, in an area of Sonsac-Rueter complex, 15 to 35 percent slopes, rocky; in tame pastureland; 2,150 feet north and 1,325 feet west of the southeast corner of sec. 26, T. 22 N., R. 31 W.; USGS Powell, Missouri, topographic quadrangle; UTM coordinates 4,051,085 meters Northing and 388,282 meters Easting, Zone 15, NAD 83:

Ap—0 to 7 inches; dark brown (10YR 3/3) (rubbed) extremely gravelly silt loam, pale brown (10YR 6/3) (crushed) dry; weak very fine and fine granular structure; very friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; 30 percent subangular chert gravel and 40 percent subrounded chert gravel; slightly acid; abrupt smooth boundary.

BA—7 to 15 inches; 60 percent dark yellowish brown (10YR 4/4) (interior) and 40 percent brown (7.5YR 4/4) (interior) extremely cobbly silt loam; weak

very fine subangular blocky structure parting to weak very fine and fine granular; friable; many very fine and fine roots throughout; many very fine and fine interstitial and tubular pores; 10 percent subrounded chert cobbles, 30 percent subrounded chert gravel, and 35 percent subangular chert cobbles; slightly acid; clear smooth boundary.

Bt1—15 to 22 inches; 52 percent yellowish red (5YR 4/6) (interior) and 48 percent brown (7.5YR 4/4) (interior) extremely cobbly silty clay loam; moderate very fine and fine subangular blocky structure; firm; many very fine and fine roots throughout; many very fine and fine interstitial pores; common prominent yellowish red (5YR 4/6) clay films on faces of peds and common distinct brown (7.5YR 4/4) clay films on faces of peds; 10 percent subangular limestone cobbles, 20 percent subangular chert gravel, and 45 percent subrounded chert cobbles; slightly acid; clear smooth boundary.

2Bt2—22 to 28 inches; 55 percent dark reddish brown (2.5YR 3/4) (interior) and 45 percent dark reddish brown (5YR 3/4) (interior) extremely flaggy clay; moderate very fine and fine subangular blocky structure; very firm; many very fine and fine roots throughout; common very fine and fine interstitial pores; common prominent dark reddish brown (2.5YR 3/4) clay films on faces of peds and common prominent dark reddish brown (5YR 3/4) clay films on faces of peds; 35 percent subrounded chert gravel and 40 percent subangular limestone stones; slightly acid; abrupt irregular boundary.

3R—28 inches; bedrock.

### **Range in Characteristics**

*Depth to bedrock:* 20 to 40 inches

*Other features:* Some pedons have a 2BC, 2C, or 2Cr horizon. This horizon, if it occurs, is highly variable in color and texture.

*A or Ap horizon:*

Hue—7.5YR or 10YR

Value—3 or 4

Chroma—2 or 3

Texture of the fine-earth fraction—silt loam or silty clay loam

Content of rock fragments—2 to 70 percent; 2 to 70 percent gravel, 0 to 40 percent cobbles, 0 to 40 percent flagstones, 0 to 10 percent stones

Reaction—strongly acid to moderately alkaline

*E horizon (if it occurs):*

Hue—10YR

Value—5 or 6

Chroma—3 to 6

Texture of the fine-earth fraction—silt loam

Content of rock fragments—2 to 80 percent; 2 to 65 percent gravel, 0 to 40 percent cobbles, 0 to 40 percent flagstones, 0 to 10 percent stones

Reaction—strongly acid to slightly acid

*BA or BE horizon (if it occurs):*

Hue—7.5YR or 10YR

Value—3 or 4

Chroma—2 to 6

Texture of the fine-earth fraction—silt loam

Content of rock fragments—2 to 70 percent; 2 to 60 percent gravel, 0 to 50 percent cobbles, 0 to 50 percent flagstones, 0 to 8 percent stones

Reaction—strongly acid to neutral

*Bt horizon (if it occurs):*

Hue—7.5YR or 10YR

Value—3 to 5

Chroma—3 to 6

Texture of the fine-earth fraction—silt loam, loam, clay loam, silty clay loam, or silty clay

Content of rock fragments—5 to 80 percent; 5 to 80 percent gravel, 0 to 40 percent cobbles, 0 to 40 percent flagstones, 0 to 8 percent stones

Reaction—strongly acid to moderately alkaline

*2Bt horizon:*

Hue—2.5YR to 2.5Y

Value—3 to 8

Chroma—2 to 8

Note—hue of 2.5Y and chroma of 2 are relict and do not indicate wetness.

Texture of the fine-earth fraction—silty clay or clay

Content of rock fragments—5 to 80 percent; 5 to 80 percent gravel, 0 to 45 percent cobbles, 0 to 45 percent flagstones, 0 to 40 percent stones

Reaction—strongly acid to moderately alkaline

### **Sowcoon Series**

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability class:* Slow

*Landform:* Sinkholes

*Parent material:* Silty colluvium over loess and/or pedisegment

*Slope range:* 0 to 3 percent

*Elevation:* 1,210 feet

*Taxonomic classification:* Fine-silty, mixed, active, mesic Fragiaquic Paleudults

**Typical Pedon**

Sowcoon silt loam, in an area of Sowcoon, ponded-Viburnum complex, 0 to 3 percent slopes; 493 feet west and 451 feet north of the southeast corner of sec. 5, T. 23 N., R. 30 W.; USGS Bethpage, Missouri, topographic quadrangle; UTM coordinates 4,067,304 meters Northing and 394,171 meters Easting, Zone 15, NAD 83:

- A—0 to 3 inches; brown (10YR 4/3) silt loam; weak very fine granular structure; friable; many very fine and fine roots; many very fine and fine interstitial and tubular pores; 1 percent subrounded chert gravel; moderately acid; clear smooth boundary.
- E1—3 to 9 inches; dark yellowish brown (10YR 4/4) and brown (10YR 5/3) silt; weak very fine and fine granular structure; friable; many very fine and fine roots; common very fine and fine interstitial and tubular pores; few fine spherical iron-manganese concretions; 1 percent subrounded chert gravel; slightly acid; clear smooth boundary.
- E2—9 to 17 inches; brown (10YR 5/3) silt loam; weak very fine and fine subangular blocky structure; friable; many very fine and fine roots; common very fine and fine interstitial and tubular pores; common manganese or iron-manganese stains and common distinct light brownish gray (10YR 6/2) silt coats on faces of peds; 2 percent subrounded chert gravel; moderately acid; abrupt wavy boundary.
- Bt—17 to 23 inches; dark grayish brown (10YR 4/2) silt loam; weak thin platy structure parting to moderate very fine and fine subangular blocky; firm; many very fine and fine roots; few very fine interstitial pores; many distinct light brownish gray (10YR 6/2) silt coats on faces of peds and common iron stains and common faint clay films on faces of peds; 5 percent subrounded chert gravel; very strongly acid; abrupt wavy boundary.
- Btg—23 to 33 inches; grayish brown (2.5Y 5/2) silty clay; strong fine and medium subangular blocky structure; very firm; many very fine and fine roots; few very fine and fine interstitial pores; many prominent very dark gray (10YR 3/1) organic stains on faces of peds, many faint clay films on faces of peds, common distinct light brownish gray (10YR 6/2) silt coats on faces of peds, and common manganese or iron-manganese stains; 5 percent subrounded chert gravel; very strongly acid; clear smooth boundary.
- 2Btgx—33 to 45 inches; grayish brown (2.5Y 5/2) very gravelly silty clay loam; weak fine subangular blocky structure; hard; common very fine and fine roots; few very fine interstitial pores; many distinct

light brownish gray (10YR 6/2) silt coats on faces of peds, common faint clay films on faces of peds, few black stains, and very few iron stains; 36 percent subrounded chert gravel; very strongly acid; clear wavy boundary.

2Btg1—45 to 62 inches; grayish brown (2.5Y 5/2) very gravelly silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; common very fine interstitial pores; common black stains and few faint clay films on faces of peds; 38 percent subrounded chert gravel; very strongly acid; clear wavy boundary.

2Btg2—62 to 80 inches; grayish brown (2.5Y 5/2) and pale brown (10YR 6/3) gravelly silt loam; moderate fine subangular blocky structure; firm; few very fine interstitial pores; few manganese or iron-manganese stains, few black stains, and few faint clay films on faces of peds; 27 percent subrounded chert gravel; very strongly acid.

**Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*Other features:* Some pedons do not have an E horizon.

*A or Ap horizon:*

Value—4 or 5

Chroma—2 to 4

Texture of the fine-earth fraction—silt loam or silt

Content of rock fragments—0 to 10 percent gravel

Reaction—very strongly acid to neutral

*E, BE, or BA horizon:*

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—2 to 4

Color of clay depletions (if they occur)—hue of 10YR, value of 6, and chroma of 2

Texture of the fine-earth fraction—silt loam or silt

Content of rock fragments—0 to 10 percent gravel

Reaction—very strongly acid to slightly acid

*Bt or Btx horizon (if it occurs):*

Hue—10YR or 7.5YR

Value—3 to 6

Chroma—1 to 4

Color of clay depletions (if they occur)—hue of 10YR, value of 5 to 7, and chroma of 1 or 2

Texture of the fine-earth fraction—silt loam or silty clay loam

Content of rock fragments—0 to 20 percent gravel

Reaction—very strongly acid to moderately acid

*2Btg, 2Btgx, or 2Egx horizon (if it occurs):*

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 or 3  
 Color of clay depletions—hue of 10YR or 2.5Y,  
 value of 6 to 8, and chroma of 1 or 2  
 Texture of the fine-earth fraction—silt loam, silty  
 clay loam, or silty clay  
 Content of rock fragments—0 to 40 percent gravel  
 Reaction—very strongly acid or strongly acid

### **Townhole Series**

*Depth class:* Very deep  
*Drainage class:* Moderately well drained  
*Permeability class:* Moderately slow  
*Landform:* Strath terraces and structural benches  
*Position on the landform:* Treads  
*Parent material:* Loamy colluvium over gravelly slope  
 alluvium over old alluvium or gravelly residuum  
*Slope range:* 1 to 8 percent  
*Elevation:* 970 feet  
*Taxonomic classification:* Loamy-skeletal, mixed,  
 semiactive, mesic Oxyaquic Paleudalfs

#### **Typical Pedon**

Townhole silt loam (fig. 31), in an area of Townhole-  
 Aslinger complex, karst, 1 to 3 percent slopes; 2,065  
 feet north and 2,122 feet east of the southwest corner  
 of sec. 15, T. 22 N., R. 31 W.; USGS McNatt, Missouri,  
 topographic quadrangle; UTM coordinates 4,054,617  
 meters Northing and 386,324 meters Easting, Zone  
 15, NAD 83:

- Ap—0 to 5 inches; dark yellowish brown (10YR 3/4)  
 silt loam; weak very fine and fine granular  
 structure; friable; many very fine to medium roots  
 throughout; many very fine and fine tubular pores;  
 3 percent subangular chert gravel and 3 percent  
 subrounded chert gravel; strongly acid; clear  
 smooth boundary.
- BA—5 to 16 inches; brown (7.5YR 4/4) silt loam; weak  
 fine and medium granular structure; friable; many  
 very fine to medium roots throughout; many very  
 fine to medium tubular pores; very few distinct  
 dark yellowish brown (10YR 3/4) organic stains on  
 upper surfaces of peds or rocks; 4 percent  
 subangular chert gravel and 4 percent  
 subrounded chert gravel; moderately acid; abrupt  
 smooth boundary.
- Bw1—16 to 22 inches; yellowish brown (10YR 5/4)  
 very gravelly silt loam; weak very fine and fine  
 subangular blocky structure; friable; many very  
 fine and fine roots throughout; many very fine and  
 fine interstitial and tubular pores; very few faint  
 pale brown (10YR 6/3) skeletans on rock  
 fragments; 15 percent subrounded chert gravel,



**Figure 31.—Profile of a Townhole soil.**

- 15 percent rounded chert gravel, and 15 percent  
 subangular chert gravel; moderately acid; clear  
 smooth boundary.
- Bw2—22 to 31 inches; 60 percent brown (10YR 5/3)  
 and 40 percent strong brown (7.5YR 5/6) very  
 gravelly silt loam; weak very fine and fine  
 subangular blocky structure; friable; many very  
 fine and fine roots throughout; many very fine and  
 fine interstitial and tubular pores; few distinct  
 light brownish gray (10YR 6/2) skeletans throughout;  
 15 percent rounded chert gravel, 20 percent  
 subangular chert gravel, and 20 percent  
 subrounded chert gravel; strongly acid; abrupt  
 smooth boundary.
- 2Bt1—31 to 48 inches; red (2.5YR 4/6) extremely  
 gravelly clay loam; weak very fine and fine  
 subangular blocky structure; firm; common very  
 fine roots throughout; many very fine to medium  
 interstitial and tubular pores; few faint dark red  
 (2.5YR 3/6) clay films on rock fragments, few

distinct light brownish gray (10YR 6/2) skeletalans on rock fragments, and few distinct strong brown (7.5YR 4/6) clay films on rock fragments; few fine and medium irregular black (N 2/0) iron-manganese masses between peds; 5 percent subrounded chert gravel, 15 percent rounded chert gravel, 30 percent subangular chert gravel, and 30 percent subrounded chert gravel; strongly acid; diffuse wavy boundary.

3Bt2—48 to 70 inches; red (2.5YR 4/6) extremely gravelly sandy clay; weak very fine and fine subangular blocky structure; firm; common very fine roots throughout; many very fine to medium interstitial and tubular pores; few faint dark red (2.5YR 3/6) clay films on rock fragments and few distinct pale brown (10YR 6/3) skeletalans on rock fragments; common fine and medium irregular black (N 2/0) manganese coatings between peds; 5 percent subrounded chert cobbles, 5 percent subangular chert cobbles, 15 percent subangular chert gravel, 15 percent rounded chert gravel, and 30 percent subrounded chert gravel; strongly acid; abrupt wavy boundary.

4Bt3—70 to 82 inches; 65 percent yellowish brown (10YR 5/4) and 35 percent strong brown (7.5YR 4/6) extremely gravelly loam; weak very fine and fine subangular blocky structure; firm; many very fine to medium interstitial and tubular pores; few distinct gray (10YR 6/1) skeletalans on rock fragments, few prominent brown (7.5YR 4/4) clay films on rock fragments, and few distinct red (2.5YR 4/6) clay films on rock fragments; common fine and medium irregular black (N 2/0) iron-manganese masses between peds; 10 percent subangular chert cobbles, 10 percent angular chert gravel, 15 percent subangular chert cobbles, 25 percent subrounded chert cobbles, and 30 percent rounded chert cobbles; strongly acid.

### ***Range in Characteristics***

*Depth to bedrock:* 60 to more than 80 inches

*Other features:* Some pedons have an E horizon. Also, some pedons have a 2Bw horizon.

#### *Ap or A horizon:*

Hue—10YR

Value—3 or 4

Chroma—1 to 4

Texture of the fine-earth fraction—silt loam

Content of rock fragments—5 to 45 percent gravel

Reaction—strongly acid to neutral

#### *BA horizon:*

Hue—10YR or 7.5YR

Value—3 to 5

Content of rock fragments—5 to 55 percent gravel

Reaction—strongly acid or moderately acid

#### *Bw or Bt horizon:*

Hue—10YR or 7.5YR

Value—3 to 6

Chroma—3 to 6

Color of clay depletions (if they occur)—hue of 10YR, value of 5 or 6, and chroma of 2

Content of rock fragments—5 to 80 percent gravel, 0 to 5 percent cobbles

Reaction—very strongly acid to moderately acid

#### *2Bt horizon:*

Hue—10YR, 7.5YR, 5YR, or 2.5YR

Value—3 to 6

Chroma—3 to 8

Color of clay depletions (if they occur)—hue of 10YR, value of 4 to 6, and chroma of 1 or 2

Texture of the fine-earth fraction—silt loam, loam, silty clay loam, clay loam, or sandy clay loam

Content of rock fragments—50 to 80 percent gravel, 0 to 10 percent cobbles; tripoli parafragments in some pedons

Reaction—extremely acid to moderately acid

#### *3Bt horizon:*

Hue—10YR, 7.5YR, 5YR, or 2.5YR

Value—3 to 6

Chroma—3 to 8

Clay depletions (if they occur)—hue of 10YR, value of 4 to 6, and chroma of 1 or 2

Texture of the fine-earth fraction—silt loam, clay loam, silty clay loam, sandy clay loam, sandy clay, or clay

Content of rock fragments—2 to 80 percent gravel, 0 to 40 percent cobbles, 0 to 2 percent channers; tripoli parafragments in some pedons

Reaction—extremely acid to moderately acid

#### *4Bt horizon:*

Hue—2.5Y, 10YR, 7.5YR, 5YR, or 2.5YR

Value—3 to 7

Chroma—4 to 8

Color of clay depletions (if they occur)—hue of 10YR, value of 4 to 7, and chroma of 1 or 2

Texture of the fine-earth fraction—loam, silty clay loam, silty clay, or clay

Content of rock fragments—0 to 80 percent gravel, 0 to 30 percent cobbles, 0 to 50 percent channers

Reaction—very strongly acid to moderately acid

## ***Viburnum Series***

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability class:* Moderately slow

*Landform:* Divides and sinkholes

*Position on the landform:* Summits

*Parent material:* Fine colluvium over gravelly valley side alluvium

*Slope range:* 1 to 8 percent

*Elevation:* 1,210 feet

*Taxonomic classification:* Fine, mixed, active, mesic Aquic Paleudults

### ***Typical Pedon***

Viburnum silt loam, in an area of Sowcoon, ponded-Viburnum complex, 0 to 3 percent slopes; in hayland; 2,614 feet north and 515 feet west of the southeast corner of sec. 5, T. 23 N., R. 30 W.; USGS Bethpage, Missouri, topographic quadrangle; UTM coordinates 4,067,221 meters Northing and 394,152 meters Easting, Zone 15, NAD 83:

A—0 to 4 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many very fine and fine roots; many very fine interstitial and tubular pores; 3 percent subrounded chert gravel; slightly acid; clear smooth boundary.

BE—4 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure parting to weak fine granular; friable; many very fine and fine roots; many very fine interstitial and tubular pores; common distinct brown (10YR 4/3) organic stains on faces of peds; 2 percent subrounded chert gravel; slightly acid; clear smooth boundary.

Bt1—7 to 14 inches; yellowish brown (10YR 5/6) silty clay loam; moderate very fine subangular blocky structure; friable; many very fine and fine roots; many very fine interstitial and tubular pores; very few distinct yellowish brown (10YR 5/6) clay films on faces of peds; common medium spherical black (N 2/0) iron-manganese masses between peds; few fine irregular red (2.5YR 4/8) masses of oxidized iron between peds; 5 percent subrounded chert gravel; strongly acid; clear wavy boundary.

Bt2—14 to 24 inches; 60 percent strong brown (7.5YR 4/6) and 40 percent strong brown (7.5YR 5/6) gravelly silty clay loam; strong very fine and fine subangular blocky structure; firm; many very fine and fine roots; common very fine interstitial and tubular pores; few distinct strong brown (7.5YR 5/6) clay films on faces of peds; common fine irregular red (2.5YR 4/8) masses of oxidized iron

between peds; common fine spherical black (N 2/0) iron-manganese masses between peds; 20 percent subrounded chert gravel; strongly acid; abrupt wavy boundary.

2Bt3—24 to 30 inches; yellowish red (5YR 4/6) gravelly silty clay loam; moderate very fine and fine subangular blocky structure; firm; common very fine roots; few very fine interstitial and tubular pores; few distinct reddish brown (5YR 5/4) skeletalans on faces of peds and in pores, few faint yellowish red (5YR 4/6) clay films on faces of peds, few prominent black (10YR 2/1) black stains on faces of peds, and very few distinct light brownish gray (10YR 6/2) skeletalans on faces of peds; common fine spherical black (N 2/0) iron-manganese masses between peds; 30 percent subrounded chert gravel; very strongly acid; abrupt smooth boundary.

2Bt4—30 to 42 inches; 60 percent yellowish red (5YR 5/6) and 40 percent yellowish red (5YR 4/6) gravelly silty clay loam; weak fine subangular blocky structure; firm; common very fine roots; common very fine interstitial and tubular pores; few distinct reddish brown (5YR 5/4) skeletalans on faces of peds and in pores, few prominent black (10YR 2/1) stains on faces of peds, few distinct yellowish red (5YR 5/6) clay films on faces of peds, and few distinct light brownish gray (10YR 6/2) skeletalans on faces of peds; 3 percent subrounded chert gravel; very strongly acid; clear wavy boundary.

2Bt5—42 to 54 inches; 55 percent red (2.5YR 4/6) and 45 percent yellowish red (5YR 4/6) gravelly silty clay loam; weak fine subangular blocky structure; firm; common very fine roots; common very fine interstitial and tubular pores; few distinct reddish brown (5YR 5/4) skeletalans on faces of peds and few distinct red (2.5YR 4/6) clay films on faces of peds; common fine spherical black (N 2/0) iron-manganese masses between peds; 20 percent subrounded chert gravel; very strongly acid; gradual wavy boundary.

2Bt6—54 to 80 inches; 55 percent yellowish red (5YR 4/6) and 45 percent red (2.5YR 4/8) silty clay loam; weak fine subangular blocky structure; friable; common very fine roots; common very fine interstitial and tubular pores; few distinct reddish brown (5YR 5/4) skeletalans on faces of peds and in pores, few distinct dark reddish gray (5YR 4/2) coats in root channels and/or pores, and few distinct red (2.5YR 4/8) clay films on faces of peds; 5 percent subrounded chert gravel; very strongly acid.

### **Range in Characteristics**

*Depth to bedrock:* 60 to more than 80 inches

*A or Ap horizon:*

Value—3 to 5

Chroma—2 to 4

Content of rock fragments—0 to 10 percent

Reaction—strongly acid to neutral

*E horizon:*

Value—4 or 5

Chroma—3 or 4

Content of rock fragments—2 to 10 percent

Reaction—strongly acid to neutral

*Bt horizon:*

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 to 6

Color of clay depletions (if they occur)—hue of 10YR, value of 6, and chroma of 2

Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam

Content of rock fragments—1 to 25 percent; 1 to 25 percent gravel and 0 to 5 percent cobbles

Reaction—strongly acid

*2Bt horizon:*

Hue—2.5YR to 10YR

Value—3 to 5

Chroma—4 to 8

Color of clay depletions (if they occur)—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 1 or 2

Texture of the fine-earth fraction—silt loam, silty clay loam, silty clay, loam, or clay loam

Content of rock fragments—0 to 45 percent; 0 to 45 percent gravel and 0 to 10 percent cobbles

### **Waben Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability class:* Moderately rapid

*Landform:* Fan terraces

*Position on the landform:* Toeslopes

*Parent material:* Gravelly alluvium and/or gravelly colluvium

*Slope range:* 2 to 8 percent

*Elevation:* 930 feet

*Taxonomic classification:* Loamy-skeletal, siliceous, active, mesic Ultic Hapludalfs

### **Typical Pedon**

Waben extremely gravelly silt loam, 3 to 8 percent

slopes; in hayland; 281 feet south and 1,153 feet east of the northwest corner of sec. 10, T. 21 N., R. 32 W.; USGS Noel, Missouri, topographic quadrangle; UTM coordinates 4,047,964 meters Northing and 376,001 meters Easting, Zone 15, NAD 83:

Ap—0 to 8 inches; brown (10YR 4/3) extremely gravelly silt loam; weak very fine and fine granular structure; very friable; many very fine roots throughout; many very fine irregular pores; 10 percent angular chert gravel, 30 percent subrounded chert gravel, and 30 percent subangular chert gravel; strongly acid; abrupt smooth boundary.

BA—8 to 16 inches; brown (7.5YR 4/4) very gravelly silt loam; weak fine granular and weak fine subangular blocky structure; very friable; many very fine roots throughout; many very fine interstitial pores; very few distinct brown (10YR 4/3) organic stains on all faces of peds; 25 percent subangular chert gravel and 25 percent subrounded chert gravel; slightly acid; clear smooth boundary.

Bt1—16 to 22 inches; 80 percent strong brown (7.5YR 4/6) and 20 percent brown (7.5YR 4/4) very gravelly silt loam; weak very fine and fine subangular blocky structure; very friable; many very fine roots throughout; many very fine interstitial pores; few distinct strong brown (7.5YR 4/6) clay films on all faces of peds and very few distinct brown (7.5YR 4/4) organic stains on all faces of peds; 28 percent subangular chert gravel and 30 percent subrounded chert gravel; moderately acid; clear smooth boundary.

Bt2—22 to 35 inches; 60 percent strong brown (7.5YR 4/6) and 40 percent strong brown (7.5YR 5/6) extremely gravelly silt loam; weak very fine and fine subangular blocky structure; friable; many very fine roots throughout; many very fine interstitial pores; common distinct strong brown (7.5YR 4/6) clay films on all faces of peds and few prominent light yellowish brown (10YR 6/4) silt coats on all faces of peds; 30 percent subangular chert gravel and 40 percent subrounded chert gravel; slightly acid; clear wavy boundary.

Bt3—35 to 48 inches; dark yellowish brown (10YR 4/4) very gravelly silt loam; weak very fine and fine subangular blocky structure; friable; common very fine roots throughout; many very fine interstitial pores; common prominent very pale brown (10YR 7/3) silt coats on all faces of peds and few faint dark yellowish brown (10YR 4/4) clay films on all faces of peds; 35 percent subrounded chert gravel; moderately acid; abrupt wavy boundary.

BC—48 to 80 inches; yellowish brown (10YR 5/4) extremely gravelly silt loam; weak fine granular and weak fine subangular blocky structure; friable; common very fine roots throughout; many very fine irregular pores; many prominent pale brown (10YR 6/3) silt coats on all faces of peds; 5 percent subrounded chert cobbles, 10 percent angular chert gravel, 30 percent subangular chert gravel, and 35 percent subrounded chert gravel; moderately acid.

### ***Range in Characteristics***

*Depth to bedrock:* 60 to more than 80 inches

*Reaction:* Very strongly acid to slightly acid throughout

#### *A horizon:*

Hue—10YR

Value—3 or 4

Chroma—2 or 3

Texture of the fine-earth fraction—silt loam or loam

Content of rock fragments—25 to 80 percent gravel

Note—where value is 3, the horizon is less than 6 inches thick.

#### *Ap horizon:*

Value—4 or 5

Chroma—3 or 4

Texture of the fine-earth fraction—silt loam or loam

Content of rock fragments—25 to 80 percent gravel

#### *E horizon:*

Hue—10YR

Value—4 to 6

Chroma—3 or 4

Texture of the fine-earth fraction—silt loam or loam

Content of rock fragments—25 to 80 percent gravel

#### *BE or BA horizon:*

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—4

Texture of the fine-earth fraction—silt loam or loam

Content of rock fragments—25 to 80 percent

#### *Bt, 2Bt, or 3Bt horizon:*

Hue—5YR to 10YR

Value—4 or 5

Chroma—4 to 6

Texture of the fine-earth fraction—silt loam, loam, silty clay loam, or clay loam

Content of rock fragments—35 to 75 percent; 35 to 75 percent gravel and 0 to 20 percent cobbles; as little as 2 percent rock fragments in individual horizons

#### *BC horizon:*

Hue—5YR to 10YR

Value—4 or 5

Chroma—4 to 8

Texture of the fine-earth fraction—silt loam or loam

Content of rock fragments—50 to 80 percent

# Formation of the Soils

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This section relates the soils in the survey area to the major factors of soil formation. It also describes the physiography and geology of the survey area.

## 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 commonly 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 others. Soil formation is complex, and many processes of soil development are still unknown.

## Parent Material

Parent material is the unconsolidated mass in which a soil forms. The formation or the deposition of this material is the first step in the development of a soil profile. The characteristics of the material determine the chemical and mineralogical composition of the soil. In McDonald County, four kinds of parent material, alone or in combinations of two or more, have contributed to the formation of the soils. These four kinds of parent material are residuum, or material

weathered from bedrock; colluvium, or material moved by gravity; loess, or wind-deposited material; and alluvium, or water-deposited material.

## Living Organisms

Plants and animals living on or in the soil are active in the soil-forming process. Plants furnish organic material to the soil and bring up plant nutrients from underlying layers to the surface layer. As plants die and decay, they contribute organic material to the soil. Bacteria and fungi decompose the plant remains and help to incorporate the organic matter into the soil.

The kind of native vegetation is one factor that has greatly influenced soil formation in McDonald County. The basic kinds of native vegetation were prairie grasses and forest vegetation. Additions of organic material to soils that formed under prairie grasses are largely a result of the yearly decomposition of plant materials. Plant tops decompose at the surface, and the roots decompose at various depths in the soil. As a result, soils that formed under prairie grasses have a thick, dark surface layer.

Additions of organic material to soils that formed under forest vegetation are mostly the result of leaves and twigs that decompose on the surface. These soils have a thin, dark surface layer.

Insects, worms, humans, and other animals affect soil formation. Bacteria and fungi cause rotting of organic material, fix nitrogen, and improve tilth. Burrowing animals and insects loosen and mix various soil horizons.

In a relatively short time, human activities have greatly affected the processes of soil formation. The major alterations include the planting of vegetation, the drainage of wet areas, and accelerated erosion. Row crops have replaced native grasses and many forested areas. Areas on flood plains and in the uplands are now farmed. These changes have increased food production but have had an adverse effect in terms of sustained productivity. Accelerated erosion continues to reduce the potential of many upland soils, and the loss of cropland to urban development is virtually irreversible.

## 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.

## 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 the 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 degree of profile development is dependent on the length of time that the parent material has been in place and subject to the soil-forming processes. Older soils show the effects of leaching and clay movement and have developed distinct horizons. Young soils show little profile development.

## Physiography and Geology

By Don Williams, geologist, Natural Resources Conservation Service

McDonald County is in the Springfield Plateau section of the Ozarks Physiographic Province. The landscape in the county varies in response to the underlying bedrock formations, especially in the southern part of the county. The larger hills and mounds are commonly capped by resistant limestone. The slopes below the caps typically developed on less resistant shales.

The oldest rocks exposed in McDonald County are Ordovician, and the youngest are Pennsylvanian. The bedrock in the county is essentially horizontal, although there is a gentle regional dip toward the west and northwest. The flat-lying nature of the bedrock is locally disturbed by the presence of several faults trending northeast to southwest. The most notable of these is the Pineville fault, a high angle normal fault complex that extends from Arkansas to the northeast across the county. Another larger named fault is the South West City fault, an east-west-trending normal fault with displacements in Mississippian-age rocks of about 100 feet. Because surface rock outcrops are limited, many faults are only obvious in the soils. Soil mapping in the county has shown this characteristic to be much more common than normally believed. These faults are geologically old and inactive and are not considered a seismic risk.

Deep, long-term weathering has left behind a very uneven bedrock surface. The depth to the top of bedrock ranges from near the surface in glades and on rocky slopes to more than 50 feet in areas of severe bedrock weathering.

From oldest to youngest, the geologic formations that are exposed at the surface in McDonald County are the Jefferson City/Cotter dolomite, the Chattanooga Shale, the Compton Limestone, the Northview Formation, the Pierson Formation, the Reeds Spring Formation, the Elsey Formation, the Burlington-Keokuk Limestones, the Hindsville limestone, the Moorefield Formation, and some Pennsylvanian-age Cherokee Group formations (Warner and Riverton Formations) (fig. 32).

**Jefferson City/Cotter Formation.**—Although not widely exposed, these Ordovician dolomites make up the oldest formation exposed in the county. Most outcrops are in the White Rock Prairie vicinity, although faults have exposed them in other areas. The formation is mostly composed of light gray to light brown, medium to finely crystalline, chert-free or cherty dolomite. The Cotter overlies the Jefferson City, and outcrops in McDonald County probably are Cotter, although the formations are very similar and are difficult to separate.

**Chattanooga Shale.**—This widespread Devonian-age shale is exposed in Missouri only in McDonald and Barry Counties. It is a fissile, black, carbonaceous, slightly sandy shale. When exposed to weathering, it quickly breaks into gravel-sized thin shale pieces. The thickness ranges from a few feet to nearly 50 feet as exposed in Bee Bluff near Powell.

**Compton Formation.**—The Compton Formation in McDonald County is bluish to dark gray and is finely crystalline with scattered crinoid debris. The upper



**Figure 32.**—Outcroppings showing the stratigraphic succession from Pierson Limestone to Northview Shale to Compton Limestone in the Mississippian layer to Chattanooga Shale of Devonian age.

beds are silty, and the lower beds are more massive. The thickness of this formation ranges from 5 to 10 feet. The Compton Formation forms a low bench in the Pierson/Northview/Compton sequence making up the Noel bluff overhangs.

**Northview Formation.**—The Northview Formation has a thin but persistent presence in McDonald County. Although the formation is mostly siltstones and shales where it is 60 feet thick in the Springfield area, it is green to greenish gray to brown, finely to medium crystalline limestone in McDonald County, where the exposures are 1 to 3 feet thick. Shale partings are common, as are pyrite inclusions. The formation tends to form a depression in the bluffs exposed along the Elk River.

**Pierson Formation.**—The Pierson Formation is identifiable in the county as a tan to greenish gray,

finely to medium crystalline limestone. Gray to white calcite crystals are common. The upper beds tend to have a higher chert content, grading into the overlying Reeds Spring. The Pierson and the underlying Compton make up many of the bluffs along the lower Elk River and the overhanging bluffs in the vicinity of Noel.

**Reeds Spring Formation.**—The Reeds Spring Formation is approximately 50 percent gray to dark gray, argillaceous mudstone (fine crystalline limestone) and 50 percent interbedded dark bluish-black chert. The limestones are lighter gray than that of the underlying Pierson Formation, and there is more chert than in the overlying Elsey Formation (fig. 33).

**Elsey Formation.**—The Elsey Formation consists of thin, alternating layers of gray limestone and chert. The chert generally occurs as nodules or thin, wavy layers between the thin layers of limestone and locally makes up 30 to 50 percent of the formation.

**Burlington-Keokuk Formation.**—The Burlington-Keokuk Formation is actually two separate formations, the Burlington Limestone and the Keokuk Limestone. The two formations are so lithologically similar in southwestern Missouri, however, that they are usually combined as a single unit. The Burlington-Keokuk Formation consists of gray, coarsely crystalline limestones that generally range from less than 10 feet to as much as 200 feet in thickness. The formation is thin to massive bedded limestone with discontinuous bands of chert and isolated chert nodules. Much of the rock is composed almost entirely of skeletal fragments of an animal called a crinoid (sea lily). The crinoid is the State fossil of Missouri. Weathering of the limestone produces a pitted and rough fossiliferous texture. This texture makes the weathered outcrops popular for fossil hunting.

The Burlington-Keokuk Formation is very susceptible to the formation of sinkholes. Infiltration of surface water through stony residuum and through cracks and fractures in the bedrock has slowly dissolved the calcium in the limestone and formed a network of underground openings. Sinkholes are formed when the ceiling of an underground opening begins to “stope” or enlarge in an upward direction. The soil and rock forming the ceiling of the underground opening continue to collapse until the roof becomes so weak that there is a complete collapse reaching the surface. There also seems to be some correlation between fault zones and concentrations of sinkholes.

The top of the Keokuk Limestone is defined at the top of the Short Creek Oolite Member of the Keokuk Limestone. Rocks above the Short Creek are defined as part of the Warsaw Formation. Oolites are very



Figure 33.—An exposure of the Elsey and Reeds Spring chert formations.

small sand-sized calcareous spheres; the rock is made up almost entirely of these spheres. No outcrops of the Short Creek were observed in the county.

**Pennsylvanian/Mississippian sandstones.—**

There are several exposures of red to brown, fine to coarse grained sandstone in the prairie areas of the southwestern parts of the county. The exposures were not distinct enough to positively classify as a particular formation. They are mostly likely either Mississippian Batesville sandstones or Pennsylvanian Cherokee

Group rocks. The rocks are poorly cemented; in places, gravel and sand are the only evidence of the unit's presence. The soil cover on the sandstone is generally thin, and the residual material shows the marked influence of sandstone.

A very odd occurrence of Pennsylvanian rocks is in the northern part of the county near McNatt, at Coal Mine Hill. Here, rocks believed to be Pennsylvanian in age are exposed in a highly faulted and deformed zone. The name derives from the fact that coal was actually mined in the area for local use.

## Hydrology

All of the bedrock units below the Pennsylvanian yield water to some degree. The Mississippian formations produce 1 to 10 gallons per minute in shallow wells. Many of the shallow ground-water wells have deteriorated in quality because of contamination from the surface, from poorly constructed and cased

wells. The major high-yielding source of ground water in the county is the dolomites of the lower Ordovician-Cambrian formations. Several cities obtain water from wells in these formations. Wells drilled for private water supplies are typically 150 to 400 feet deep and yield 10 to 25 gallons per minute. Wells drilled for public water supplies are generally 500 to 1,000 feet deep and yield up to 500 gallons per minute.



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# Glossary

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Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook" (available in local offices of the Natural Resources Conservation Service or on the Internet).

**ABC soil.** A soil having an A, a B, and a C horizon.

**AC soil.** A soil having only an A and a C horizon.

Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

**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.** A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

**Alluvium.** Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

**Alpha,alpha-dipyridyl.** A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Area reclaim** (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Aspect.** The direction toward which a slope faces. Also called slope aspect.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low .....	0 to 3
Low .....	3 to 6
Moderate .....	6 to 9
High .....	9 to 12
Very high .....	more than 12

**Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

**Basal 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.

**Base slope** (geomorphology). A geomorphic component of hills consisting of the concave to

linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

- Bedding plane.** A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
- 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.
- Bottom land.** An informal term loosely applied to various portions of a flood plain.
- Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.
- 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 and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Catsteps.** See Terracettes.

**Cement rock.** Shaly limestone used in the manufacture of cement.

**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.

**Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

**Chemical treatment.** Control of unwanted vegetation through the use of chemicals.

**Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

**Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural

class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

**Clay depletions.** See Redoximorphic features.

**Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

**Clayey soil.** Silty clay, sandy clay, or clay.

**Claypan.** A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.

**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 has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

**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.** Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

**Commercial forest.** Forestland capable of producing 20 cubic feet or more per acre per year at the culmination of the 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.

**Concretions.** See Redoximorphic features.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**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** (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.
- Corrosion** (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- Cropping system.** Growing crops according to a planned system of rotation and management practices.
- 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 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.
- 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.** A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.
- Draw.** A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.
- Droughty** (in tables). The soil holds an insufficient amount of 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 low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.
- Earthy fill.** See Mine spoil.
- 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 deposit.** Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

**Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erodes easily** (in tables). The 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.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. 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.

**Fast intake** (in tables). The rapid movement of water into the soil.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the 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.** An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

**Flaggy soil material.** Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

**Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

**Flood plain.** The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

**Flood-plain landforms.** A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

**Flood-plain splay.** A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

- Flood-plain step.** An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.
- Fluvial.** Of or pertaining to rivers or streams; produced by stream or river action.
- Foothills.** A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).
- Footslope.** The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb.** Any herbaceous plant not a grass or a sedge.
- Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.
- Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.
- Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.
- 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.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.
- Ground water.** Water filling all the unblocked pores of the material below the water table.
- Gully.** A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- Hard to pack** (in tables). Difficult to compact using regular earthwork construction equipment.
- Hard to reclaim** (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.
- Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.
- Head slope** (geomorphology). A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.
- 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.
- Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.
- Highly erodible** (in tables). The soil has a wind 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 generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

**Hillslope.** A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

*L horizon.*—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

*A horizon.*—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*—Soft, consolidated bedrock beneath the soil.

*R layer.*—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**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.** A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

**Interfluve** (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

**Intermittent stream.** A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**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.** See Redoximorphic features.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation include:  
*Controlled flooding.*—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Corrugation.*—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

*Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

*Subirrigation.*—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

*Wild flooding.*—Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Karst** (topography). A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

**Knoll.** A small, low, rounded hill rising above adjacent landforms.

**Ksat.** Saturated hydraulic conductivity. (See Permeability.)

**Landslide.** A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**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.** Material transported and deposited by wind and consisting dominantly of silt-sized particles.

**Low strength.** The soil is not strong enough to support loads.

**Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until

the next crop in the rotation is established. These crops return little organic matter to the soil.

**Masses.** See Redoximorphic features.

**Mean annual increment (MAI).** The average annual increase in volume of a tree during the entire life of the tree.

**Meander belt.** The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

**Meander scar.** A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

**Meander scroll.** One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

**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.

**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.

**Mine spoil.** An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** A kind of map unit that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Monadnock.** An isolated hill or mountain of resistant rock rising conspicuously above the general level of a lower erosion surface in a temperate climate representing an isolated remnant of a former

erosion cycle in an area that has largely been beveled to its base level.

**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 generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) 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. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

**Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**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.** See Redoximorphic features.

**Nose slope (geomorphology).** A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

**Nutrient, 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.

**Paleoterrace.** An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedimentation.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The movement of water through the soil.

**Percolates slowly** (in tables). The slow movement of water through the soil adversely affects the specified use.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms

describing permeability, measured in inches per hour, are as follows:

Impermeable .....	less than 0.0015 inch
Very slow .....	0.0015 to 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate .....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid .....	more than 20 inches

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plateau** (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

**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.

**Pore linings.** See Redoximorphic features.

**Potential native plant community.** See Climax plant community.

**Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content

of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Quartzite, metamorphic.** Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

**Quartzite, sedimentary.** Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

**Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid .....	less than 3.5
Extremely acid .....	3.5 to 4.4
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Moderately acid .....	5.6 to 6.0
Slightly acid .....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Slightly alkaline .....	7.4 to 7.8
Moderately alkaline .....	7.9 to 8.4
Strongly alkaline .....	8.5 to 9.0
Very strongly alkaline .....	9.1 and higher

**Redoximorphic concentrations.** See Redoximorphic features.

**Redoximorphic depletions.** See Redoximorphic features.

**Redoximorphic features.** Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
  - A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
  - B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
  - C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
  - A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
  - B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletons).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in

hue or chroma within 30 minutes after the soil material has been exposed to air.

**Reduced matrix.** See Redoximorphic features.

**Regolith.** All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

**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 relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

**Rill.** A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

**Riser.** The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

**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.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Rooting depth (in tables).** Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

**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.

**Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

**Saprolite.** Unconsolidated residual material underlying the soil and grading to hard bedrock below.

**Saturated hydraulic conductivity (Ksat).** See Permeability.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**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.

**Seasonal wetness (in tables).** The soil may be wet during the period of desired use. The wetness usually occurs during the winter and early spring.

**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.

**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.** A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include

consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

**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.

**Semiconsolidated sedimentary beds.** Soft geologic sediments that disperse when fragments are placed in water. The fragments are hard or very hard when dry. Determining the texture by the usual field method is difficult.

**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 that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

**Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**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 convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Side slope** (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

**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.** An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Sinkhole.** A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

**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.

**Slickensides** (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Slope alluvium.** Sediment gradually transported on slopes of mountains or hills primarily by alluvial processes and characterized by particle sorting. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Sorting of rounded or subrounded pebbles or cobbles and burnished peds distinguish these materials from unsorted colluvial deposits.

**Slope/erodibility** (in tables). A combination of slope and susceptibility to water erosion may restrict the specified use.

**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.

**Sodic (alkali) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of

climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

**Soil reaction** (in tables). The soil reaction is either too high or too low for the specified 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.

**Stickiness (surface)** (in tables). The soil is slippery and sticky when wet and slow to dry.

**Stone line.** In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Strath terrace.** A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

**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, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

**Strippcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.

**Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

**Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

**Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

**Tailwater.** The water directly downstream from a structure.

**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 (conservation).** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace (geomorphology).** A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

**Terracettes.** Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.” The abbreviations (see table 17) 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 descriptions 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—cobble*, *CBV—very cobble*, *CBX—extremely cobble*, *CN—channery*, *CNV—very channery*, *CNX—extremely channery*, *FL—flaggy*, *FLV—very flaggy*, *FLX—extremely flaggy*, *GR—gravelly*,

*GRV—very gravelly, GRX—extremely gravelly, 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 gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

**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 be used 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.

**Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Tread.** The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

**Upland.** An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

**Valley.** An elongated depressional area primarily developed by stream action.

**Valley fill.** The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

**Variation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

**Varve.** A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

**Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

**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 disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

**Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

**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.

# Tables

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Table 1.--Temperature and Precipitation  
(Recorded in the period 1964-93 at Anderson, 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	
January----	45.0	21.7	33.3	72	-10	10	1.92	1.04	2.43	3	4.2
February---	49.9	25.6	37.7	75	-4	20	2.04	1.29	2.47	4	3.9
March-----	60.2	34.9	47.6	84	7	103	3.66	2.47	4.37	6	3.1
April-----	71.1	44.9	58.0	88	22	274	4.13	2.67	4.97	6	.0
May-----	76.4	53.0	64.7	89	32	463	4.41	3.42	5.10	7	.0
June-----	83.7	61.5	72.6	94	43	686	4.68	3.25	5.57	6	.0
July-----	89.4	65.9	77.6	101	50	857	2.99	1.70	3.64	4	.0
August-----	87.7	63.7	75.7	101	47	805	3.93	2.69	4.68	5	.0
September--	79.8	57.1	68.5	95	33	562	4.75	2.57	5.79	6	.0
October----	70.7	44.8	57.7	89	24	275	3.58	2.05	4.35	5	.0
November---	58.6	35.0	46.8	81	10	86	4.16	2.29	5.07	5	1.0
December---	48.5	25.7	37.1	72	-5	19	3.06	1.91	3.69	4	2.9
Yearly:											
Average---	68.4	44.5	56.5	---	---	---	---	---	---	---	---
Extreme---	107	-21	---	103	-14	---	---	---	---	---	---
Total-----	---	---	---	---	---	4,160	43.30	---	---	61	15.1

\* 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 1964-93 at Anderson, Missouri)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
<b>Last freezing temperature in spring:</b>			
1 year in 10 later than--	Apr. 10	Apr. 23	May 8
2 years in 10 later than--	Apr. 6	Apr. 18	May 3
5 years in 10 later than--	Mar. 27	Apr. 10	Apr. 22
<b>First freezing temperature in fall:</b>			
1 year in 10 earlier than--	Oct. 23	Oct. 11	Sept. 25
2 years in 10 earlier than--	Oct. 28	Oct. 16	Sept. 30
5 years in 10 earlier than--	Nov. 8	Oct. 26	Oct. 8

Table 3.--Growing Season

(Recorded in the period 1964-93 at Anderson, 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	190	171	153
8 years in 10	196	178	158
5 years in 10	208	191	168
2 years in 10	220	204	178
1 year in 10	226	210	183

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

Map symbol	Soil name	Acres	Percent
70067	Pembroke silt loam, karst, 1 to 3 percent slopes, ponded-----	441	0.1
70068	Bendavis-Jollymill-Crackerneck complex, karst, 1 to 3 percent slopes-----	7,891	2.3
70069	Jollymill-Crackerneck complex, karst, 3 to 8 percent slopes-----	8,393	2.4
70070	Crackerneck-Hailey complex, karst, 8 to 15 percent slopes, stony-----	1,043	0.3
70071	Sowcoon, ponded-Viburnum complex, 0 to 3 percent slopes-----	477	0.1
70072	Rueter-Pomme complex, 3 to 15 percent slopes-----	5,583	1.6
70073	Beemont cobbly fine sandy loam, 5 to 20 percent slopes, extremely stony--	99	*
70074	Townhole silt loam, 1 to 5 percent slopes-----	2,800	0.8
70075	Waben extremely gravelly silt loam, 3 to 8 percent slopes-----	2,244	0.6
70076	Clarksville-Noark complex, 3 to 15 percent slopes-----	34,456	10.0
70077	Flagspring extremely gravelly silt loam, 3 to 15 percent slopes-----	4,322	1.2
70078	Goss-Rueter complex, 8 to 20 percent slopes-----	7,966	2.3
70079	Viburnum-Crackerneck complex, karst, 1 to 3 percent slopes-----	9,305	2.7
70080	Noark-Clarksville-Crackerneck complex, karst, 3 to 8 percent slopes-----	17,742	5.1
70081	Rueter-Goss-Jollymill complex, 15 to 35 percent slopes-----	94,654	27.4
70082	Paintbrush-Friendly complex, 1 to 3 percent slopes-----	2,336	0.7
70083	Eldorado very gravelly silt loam, 3 to 8 percent slopes-----	809	0.2
70150	Moko-Rock outcrop complex, 50 to 100 percent slopes-----	700	0.2
71253	Hartville gravelly silt loam, 0 to 3 percent slopes-----	581	0.2
71255	Britwater gravelly silt loam, 2 to 5 percent slopes-----	1,023	0.3
71256	Townhole-Aslinger complex, 3 to 8 percent slopes-----	531	0.2
71257	Townhole-Aslinger complex, karst, 1 to 3 percent slopes-----	2,798	0.8
71258	Maplegrove-Carl, rarely flooded, complex, 0 to 3 percent slopes-----	226	*
71752	Bearthicket silt loam, 0 to 3 percent slopes, occasionally flooded-----	2,870	0.8
71753	Cedargap, frequently flooded-Pinerun, occasionally flooded, complex, 0 to 3 percent slopes-----	1,758	0.5
71754	Waben-Cedargap, occasionally flooded, complex, 0 to 5 percent slopes-----	15,728	4.5
71755	Cedargap, frequently flooded-Gladden, occasionally flooded, complex, 0 to 3 percent slopes-----	10,844	3.1
73116	Pomme silt loam, 2 to 5 percent slopes-----	4,951	1.4
73120	Rueter-Gasconade-Rock outcrop complex, 35 to 60 percent slopes-----	15,443	4.5
73349	Boskydell very gravelly silty clay loam, 8 to 20 percent slopes-----	2,132	0.6
73350	Clinkenbeard-Gobbler complex, 3 to 8 percent slopes-----	2,250	0.7
73351	Sonsac-Rueter complex, 15 to 35 percent slopes, rocky-----	1,191	0.3
73352	Jollymill-Bendavis complex, 3 to 15 percent slopes-----	35,485	10.3
73353	Hailey-Sonsac complex, 35 to 70 percent slopes, very rocky-----	37,354	10.8
73355	Moko-Blueye-Rock outcrop complex, 8 to 15 percent slopes-----	1,338	0.4
73356	Moko-Rock outcrop complex, 15 to 50 percent slopes-----	1,594	0.5
73357	Moko-Boskydell-Rock outcrop complex, 35 to 100 percent slopes-----	187	*
73358	Eldorado-Moko complex, 3 to 8 percent slopes-----	1,471	0.4
73359	Bona-Moko complex, 8 to 15 percent slopes, very rocky-----	1,637	0.5
74640	Hootentown silt loam, 0 to 3 percent slopes, rarely flooded-----	2,147	0.6
99000	Pits, quarries-----	23	*
99001	Water-----	109	*
99003	Miscellaneous water-----	55	*
99007	Dam-----	15	*
99016	Water-Riverwash complex-----	835	0.2
	Total-----	345,837	100.0

\* Less than 0.1 percent.

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

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

Map symbol and soil name	Land capability	Corn	Grain sorghum	Improved bermudagrass hay	Sorghum silage	Soybeans	Tall fescue hay	Tall fescue- red clover hay	Winter wheat
		Bu	Bu	Tons	Tons	Bu	Tons	Tons	Bu
70067: Pembroke, karst-----	2w	100	100	5.5	---	40	4.7	4.7	40.0
70068: Bendavis, karst-----	2e	---	---	2.3	---	---	1.9	1.9	---
Jollymill, karst-----	2e	---	---	3.3	---	---	2.8	2.8	---
Crackerneck, karst-----	2e	---	---	3.3	---	---	2.8	2.8	39.0
70069: Jollymill, karst-----	3e	69	60	3.0	---	26	2.6	2.6	27.0
Crackerneck, karst-----	3e	69	60	3.0	---	26	2.6	2.6	27.0
70070: Crackerneck, karst-----	6s	---	---	---	---	---	---	---	---
Hailey, karst	6s	---	---	---	---	---	---	---	---
70071: Sowcoon-----	5w	100	90	4.5	7.7	39	3.9	3.9	40.0
Viburnum-----	2e	97	85	4.3	7.3	36	3.6	3.6	39.0
70072: Rueter-----	4e	---	47	---	4.1	---	2.0	2.0	22.0
Pomme-----	4e	---	73	---	6.2	---	3.1	3.1	33.0
70073: Beemont-----	7e	---	---	---	---	---	---	---	---
70074: Townhole-----	2e	86	75	---	6.4	32	3.2	3.2	34.0

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

Map symbol and soil name	Land capability	Corn	Grain sorghum	Improved bermudagrass hay	Sorghum silage	Soybeans	Tall fescue hay	Tall fescue- red clover hay	Winter wheat
		Bu	Bu	Tons	Tons	Bu	Tons	Tons	Bu
70075: Waben-----	3s	59	52	3.2	4.4	22	2.2	2.2	24.0
70076: Clarksville---	6e	---	---	2.1	3.6	---	1.8	1.8	---
Noark-----	6e	---	---	2.1	3.6	---	1.8	1.8	---
70077: Flagspring---	6e	---	68	3.4	5.8	---	2.9	2.9	31.0
70078: Goss-----	6e	---	---	---	---	---	---	---	---
Rueter-----	6e	---	---	---	---	---	---	---	---
70079: Viburnum-----	2e	97	85	6.1	7.3	36	3.6	3.6	39.0
Crackerneck---	2e	74	65	3.3	5.6	28	2.8	2.8	39.0
70080: Noark-----	4e	---	---	2.1	3.6	---	1.8	1.8	---
Clarksville---	4e	---	---	2.1	3.6	---	1.8	1.8	---
Crackerneck, karst-----	4e	69	60	3.0	---	26	2.6	2.6	27.0
70081: Rueter-----	6e	---	---	---	---	---	---	---	---
Goss-----	6e	---	---	---	---	---	---	---	---
Jollymill-----	6e	---	---	---	---	---	---	---	---
70082: Paintbrush---	2e	77	68	3.4	5.8	29	2.9	2.9	31.0
Friendly-----	2e	97	85	4.3	7.3	36	3.6	---	39.0
70083: Eldorado-----	4e	74	65	3.3	5.7	28	2.8	2.8	39.0

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

Map symbol and soil name	Land capability	Corn	Grain sorghum	Improved bermudagrass hay	Sorghum silage	Soybeans	Tall fescue hay	Tall fescue- red clover hay	Winter wheat
		Bu	Bu	Tons	Tons	Bu	Tons	Tons	Bu
70150: Moko-----	8s	---	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---	---
71253: Hartville----	2e	100	95	4.8	---	37	4.1	4.1	40.0
71255: Britwater----	3e	100	95	4.8	8.1	37	4.1	---	40.0
71256: Townhole-----	3e	74	65	---	5.6	28	2.8	2.8	30.0
Aslinger-----	3e	86	75	---	6.4	32	3.2	3.2	34.0
71257: Townhole, karst-----	2e	80	70	---	6.0	30	3.0	3.0	32.0
Aslinger, karst-----	2e	91	80	---	6.9	34	3.4	3.4	37.0
71258: Maplegrove----	2e	100	95	4.8	---	40	4.1	4.1	40.0
Carl-----	3w	97	85	4.3	---	36	3.6	3.6	---
71752: Bearthicket---	2w	109	95	---	---	40	4.1	4.1	40.0
71753: Cedargap-----	3w	70	50	---	---	21	2.1	2.1	23.0
Pinerun-----	3w	73	55	---	---	24	2.4	2.4	25.0
71754: Waben-----	3s	69	60	---	---	26	2.6	2.6	27.0
Cedargap-----	3w	57	50	---	---	21	2.1	2.1	23.0
71755: Cedargap-----	3w	---	---	---	---	---	---	---	---
Gladden-----	2w	100	88	---	---	38	3.8	4.4	40.0

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

Map symbol and soil name	Land capability	Corn	Grain sorghum	Improved bermudagrass hay	Sorghum silage	Soybeans	Tall fescue hay	Tall fescue- red clover hay	Winter wheat
		Bu	Bu	Tons	Tons	Bu	Tons	Tons	Bu
73116: Pomme-----	2e	84	73	3.6	6.2	31	3.1	---	34.0
73120: Rueter-----	7e	---	---	---	---	---	---	---	---
Gasconade-----	7s	---	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---	---
73349: Boskydell-----	6e	---	---	---	---	---	2.4	2.4	---
73350: Clinkenbeard--	3e	---	---	---	---	---	1.9	1.9	21.0
Gobbler-----	3e	---	---	---	---	---	2.4	2.4	25.0
73351: Sonsac-----	7e	---	---	---	---	---	---	---	---
Rueter-----	7e	---	---	---	---	---	---	---	---
73352: Jollymill-----	4e	---	---	2.6	4.5	---	2.3	2.3	---
Bendavis-----	4e	---	---	1.6	2.8	---	1.4	1.4	---
73353: Hailey-----	7e	---	---	---	---	---	---	---	---
Sonsac-----	7e	---	---	---	---	---	---	---	---
73355: Moko-----	6e	---	---	---	---	---	---	---	---
Blueye-----	6e	---	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---	---
73356: Moko-----	7s	---	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---	---

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

Map symbol and soil name	Land capability	Corn	Grain sorghum	Improved bermudagrass hay	Sorghum silage	Soybeans	Tall fescue hay	Tall fescue- red clover hay	Winter wheat
		Bu	Bu	Tons	Tons	Bu	Tons	Tons	Bu
73357:									
Moko-----	8s	---	---	---	---	---	---	---	---
Boskydell----	8s	---	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---	---
73358:									
Eldorado-----	4e	---	---	3.3	---	---	2.8	2.8	39.0
Moko-----	4e	---	---	1.1	---	---	1.0	1.0	---
73359:									
Bona-----	6s	---	---	---	---	---	---	---	---
Moko-----	6s	---	---	---	---	---	---	---	---
74640:									
Hootentown----	1	113	99	4.9	8.4	42	4.2	4.2	46.0
99000. Pits, quarries									
99001. Water									
99003. Miscellaneous water									
99007. Dam									
99016: Water.									
Riverwash-----	8w	---	---	---	---	---	---	---	---

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

(See text for descriptions of the pasture and hayland suitability groups. 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	Caucasian bluestem	Improved bermudagrass	Orchard- grass- alfalfa	Tall fescue	Tall fescue- red clover
		Tons	Tons	Tons	Tons	Tons
70067: Pembroke, karst-----	LyU	7.9	7.9	7.9	6.8	6.8
70068: Bendavis, karst-----	MDU	3.2	3.2	---	2.8	2.8
Jollymill, karst-----	GrU	4.6	4.6	4.6	4.0	4.0
Crackerneck, karst-----	GrU	4.6	4.6	4.6	4.0	4.0
70069: Jollymill, karst-----	GrU	4.3	4.3	4.3	3.7	3.7
Crackerneck, karst-----	GrU	4.3	4.3	4.3	3.7	3.7
70070: Crackerneck, karst-----	GrU	7.1	---	---	5.3	---
Hailey, karst-----	GrU	7.1	---	---	5.3	---
70071: Sowcoon-----	WLO	6.4	6.4	---	5.5	---
Viburnum-----	CyU	6.1	6.1	---	5.2	---
70072: Rueter-----	GrU	3.4	3.4	3.4	2.9	2.9
Pomme-----	LyU	5.2	5.2	5.2	4.5	4.5
70073: Beemont-----	GrU	3.3	3.3	3.3	2.3	2.3
70074: Townhole-----	GrU	5.4	5.4	5.4	4.6	4.6
70075: Waben-----	GrU	4.8	---	---	3.1	---
70076: Clarksville-----	GrU	3.0	3.0	3.0	2.6	2.6
Noark-----	GrU	3.0	3.0	3.0	2.6	2.6
70077: Flagspring-----	CyU	4.8	4.8	4.8	4.1	4.1
70078: Goss-----	GrU	7.1	---	---	5.3	---
Rueter-----	GrU	7.1	---	---	5.3	---
70079: Viburnum-----	CyU	6.1	6.1	2.9	5.2	5.2
Crackerneck-----	GrU	4.6	4.6	4.6	4.0	4.0

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

Map symbol and soil name	Pasture and hayland group	Caucasian bluestem	Improved bermudagrass	Orchard- grass- alfalfa	Tall fescue	Tall fescue- red clover
		Tons	Tons	Tons	Tons	Tons
70080:						
Noark-----	GrU	3.0	3.0	3.0	2.6	2.6
Clarksville-----	GrU	3.0	3.0	3.0	2.6	2.6
Crackerneck, karst-----	GrU	4.3	4.3	4.3	3.7	3.7
70081:						
Rueter-----	GrU	2.3	2.3	2.3	2.0	2.0
Goss-----	GrU	2.3	2.3	2.3	2.0	2.0
Jollymill-----	GrU	2.7	2.7	2.7	2.3	2.3
70082:						
Paintbrush-----	LyP	4.8	4.8	4.8	4.1	4.1
Friendly-----	WtP	6.1	6.1	4.5	5.2	3.6
70083:						
Eldorado-----	GrU	4.6	4.6	4.6	4.0	4.0
70150:						
Moko-----	GNS	---	---	---	---	---
Rock outcrop-----	GNS	---	---	---	---	---
71253:						
Hartville-----	WCB	6.8	6.8	6.8	5.8	5.8
71255:						
Britwater-----	LyU	6.8	6.8	5.7	5.8	5.8
71256:						
Townhole-----	GrU	4.6	4.6	4.6	4.0	4.0
Aslinger-----	LyP	5.4	5.4	5.4	4.6	4.6
71257:						
Townhole, karst-----	GrU	5.0	5.0	5.0	4.3	4.3
Aslinger, karst-----	LyP	5.7	5.7	5.7	4.9	4.9
71258:						
Maplegrove-----	CyU	6.8	6.8	6.8	5.8	5.8
Carl-----	WCB	4.9	6.1	4.4	5.2	5.2
71752:						
Bearthicket-----	LyO	---	---	6.8	5.8	5.8
71753:						
Cedargap-----	GrO	---	---	3.6	3.1	3.1
Pinerun-----	GrO	---	---	3.9	3.4	3.4
71754:						
Waben-----	GrU	---	---	4.3	3.7	3.7
Cedargap-----	GrO	---	---	3.6	3.1	3.1

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

Map symbol and soil name	Pasture and hayland group	Caucasian bluestem	Improved bermudagrass	Orchard- grass- alfalfa	Tall fescue	Tall fescue- red clover
		Tons	Tons	Tons	Tons	Tons
71755: Cedargap-----	GrO	---	---	---	3.1	---
Gladden-----	LyO	---	---	6.3	5.4	5.4
73116: Pomme-----	LyU	5.2	---	6.5	4.4	5.5
73120: Rueter-----	GNS	---	---	---	1.4	---
Gasconade-----	ShU	2.2	---	---	1.4	---
Rock outcrop-----	GNS	---	---	---	---	---
73349: Boskydell-----	GrU	3.9	3.9	3.9	3.4	3.4
73350: Clinkenbeard-----	MDU	3.2	3.2	3.2	2.8	2.8
Gobbler-----	GrU	3.9	3.9	3.2	3.4	3.4
73351: Sonsac-----	MDU	0.9	0.9	---	0.8	---
Rueter-----	GrU	2.3	2.3	---	2.0	---
73352: Jollymill-----	GrU	3.8	3.8	3.8	3.2	3.2
Bendavis-----	MDU	2.3	---	2.3	2.0	2.0
73353: Hailey-----	GNS	---	---	---	---	---
Sonsac-----	GNS	---	---	---	---	---
73355: Moko-----	ShU	---	---	---	---	---
Blueye-----	MDU	---	---	---	---	---
Rock outcrop-----	GNS	---	---	---	---	---
73356: Moko-----	GNS	---	---	---	---	---
Rock outcrop-----	GNS	---	---	---	---	---
73357: Moko-----	GNS	---	---	---	---	---
Boskydell-----	GNS	---	---	---	---	---
Rock outcrop-----	GNS	---	---	---	---	---
73358: Eldorado-----	GrU	4.6	4.6	4.6	4.0	4.0
Moko-----	ShU	1.6	1.6	---	1.4	1.4

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

Map symbol and soil name	Pasture and hayland group	Caucasian bluestem	Improved bermudagrass	Orchard- grass- alfalfa	Tall fescue	Tall fescue- red clover
		Tons	Tons	Tons	Tons	Tons
73359:						
Bona-----	GrU	4.1	4.1	4.1	3.5	3.5
Moko-----	ShU	1.1	1.1	---	0.9	---
74640:						
Hootentown-----	LyO	7.0	---	---	6.0	---
99000:						
Pits, quarries-----	GNS	---	---	---	---	---
99001. Water						
99003. Miscellaneous water						
99007. Dam						
99016: Water.						
Riverwash-----	GNS	---	---	---	---	---

Table 7.--Forestland Productivity

(See text for an explanation of terms used in this table. 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	
70067:				
Pembroke, karst-----	Northern red oak----	85	57	---
	Tuliptree-----	90	86	
	White oak-----	60	43	
70068:				
Bendavis, karst-----	Black oak-----	54	43	Shortleaf pine
	Post oak-----	47	29	
	Shortleaf pine-----	---	---	
Jollymill, karst-----	Black oak-----	57	43	Black oak,
	White oak-----	55	43	shortleaf pine
Crackerneck, karst-----	Black oak-----	62	43	Black oak, northern
	Northern red oak----	58	43	red oak, shortleaf
	Shortleaf pine-----	58	86	pine, white oak
	White oak-----	56	43	
70069:				
Jollymill, karst-----	Black oak-----	57	43	Black oak,
	White oak-----	55	43	shortleaf pine
Crackerneck, karst-----	Black oak-----	62	43	Black oak, northern
	Northern red oak----	58	43	red oak, shortleaf
	Shortleaf pine-----	58	86	pine, white oak
	White oak-----	56	43	
70070:				
Crackerneck, karst-----	Black oak-----	62	43	Bitternut hickory,
	Northern red oak----	62	43	black hickory,
	Post oak-----	58	43	black oak,
	White oak-----	60	43	blackgum,
				blackjack oak,
				chinkapin oak,
				cockspur hawthorn,
				common
				serviceberry,
				eastern redbud,
				eastern redcedar,
				flowering dogwood,
				mockernut hickory,
				northern red oak,
				persimmon, pignut
				hickory, post oak,
				red pine,
				sassafras, scarlet
				oak, shagbark
				hickory, shingle
				oak, shortleaf
				pine, southern red
				oak, white ash,
				white ash

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
70070: Hailey, karst-----	Black oak-----	58	43	Bitternut hickory, black hickory, black oak, blackgum, blackjack oak, chinkapin oak, cockspur hawthorn, common serviceberry, eastern redbud, eastern redcedar, flowering dogwood, mockernut hickory, northern red oak, persimmon, pignut hickory, post oak, red pine, sassafras, scarlet oak, shagbark hickory, shingle oak, shortleaf pine, southern red oak, white ash, white ash
	Northern red oak----	61	43	
	White oak-----	58	43	
70071: Sowcoon-----	Northern red oak----	70	57	Green ash, northern red oak
	Pin oak-----	65	43	
	White oak-----	66	43	
Viburnum-----	Black oak-----	62	43	Black oak, northern red oak, white oak
	Shortleaf pine-----	58	86	
70072: Rueter-----	Black oak-----	74	56	Black oak, white oak
	Post oak-----	---	---	
	White oak-----	75	56	
Pomme-----	Northern red oak----	65	43	Black walnut, shortleaf pine, white oak
	White oak-----	65	43	
70073: Beemont-----	Northern red oak----	61	43	Eastern redcedar, shortleaf pine
	White oak-----	48	29	
70074: Townhole-----	Black oak-----	59	43	Black oak, shortleaf pine
	Shortleaf pine-----	54	71	
70075: Waben-----	Black oak-----	71	57	Black oak, northern red oak, shortleaf pine, white oak
	Northern red oak----	66	57	
	Shortleaf pine-----	70	114	
	White oak-----	66	114	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
70076:				
Clarksville-----	Black oak-----	62	43	Black oak,
	Northern red oak---	58	43	shortleaf pine
	Shortleaf pine-----	58	86	
	White oak-----	55	43	
Noark-----	Black oak-----	65	43	Black oak, northern
	Eastern redcedar----	40	43	red oak, white oak
	Northern red oak---	60	43	
	Shortleaf pine-----	60	86	
	White oak-----	58	43	
70077:				
Flagspring-----	Black oak-----	63	43	Black oak,
	Northern red oak---	61	43	shortleaf pine,
	Shortleaf pine-----	63	98	white oak
	White oak-----	59	43	
70078:				
Goss-----	Black oak-----	56	43	Bitternut hickory,
	Northern red oak---	54	43	black hickory,
	White oak-----	54	43	black oak,
				blackgum,
				blackjack oak,
				chinkapin oak,
				cockspur hawthorn,
				common
				serviceberry,
				eastern redbud,
				eastern redcedar,
				flowering dogwood,
				mockernut hickory,
				northern red oak,
				persimmon, pignut
				hickory, post oak,
				red pine,
				sassafras, scarlet
				oak, shagbark
				hickory, shingle
				oak, shortleaf
				pine, southern red
				oak, white ash,
				white ash

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
70078: Rueter-----	Black oak-----	61	43	Bitternut hickory, black hickory, black oak, blackgum, blackjack oak, chinkapin oak, cockspur hawthorn, common serviceberry, eastern redbud, eastern redcedar, flowering dogwood, mockernut hickory, northern red oak, persimmon, pignut hickory, post oak, red pine, sassafras, scarlet oak, shagbark hickory, shingle oak, shortleaf pine, southern red oak, white ash, white ash
	Northern red oak----	61	43	
	Shortleaf pine-----	61	86	
	White oak-----	58	43	
70079: Viburnum-----	Black oak-----	62	43	Black oak, northern red oak, white oak
	Shortleaf pine-----	58	86	
Crackerneck-----	Black oak-----	62	43	---
	Northern red oak----	58	43	
	Shortleaf pine-----	58	86	
	White oak-----	56	43	
70080: Noark-----	Black oak-----	65	43	Black oak, northern red oak, white oak
	Eastern redcedar----	40	43	
	Northern red oak----	60	43	
	Shortleaf pine-----	60	86	
	White oak-----	58	43	
Clarksville-----	Black oak-----	62	43	Black oak, shortleaf pine
	Northern red oak----	58	43	
	Shortleaf pine-----	58	86	
	White oak-----	55	43	
Crackerneck, karst-----	Black oak-----	62	43	Black oak, northern red oak, shortleaf pine, white oak
	Northern red oak----	58	43	
	Shortleaf pine-----	58	86	
	White oak-----	56	43	
70081: Rueter-----	Black oak-----	59	43	Black oak, white oak
	Post oak-----	---	---	
	White oak-----	55	43	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
70081: Goss-----	Black oak-----	57	43	Black oak, shortleaf pine, white oak
	Blackjack oak-----	---	---	
	Post oak-----	50	29	
	Shortleaf pine-----	57	86	
	White oak-----	55	43	
Jollymill-----	Black oak-----	57	43	Black oak, shortleaf pine
	White oak-----	55	43	
70082: Paintbrush-----	White oak-----	60	43	Black oak, white oak
Friendly-----	White oak-----	50	29	Black oak
70083. Eldorado				
70150: Moko-----	Eastern redcedar---	30	29	Eastern redcedar
Rock outcrop.				
71253: Hartville-----	White oak-----	55	43	Green ash, northern red oak, white oak
71255: Britwater-----	Eastern redcedar----	50	57	Black walnut, northern red oak, white oak
	Northern red oak----	70	57	
	Shortleaf pine-----	70	114	
71256: Townhole-----	Black oak-----	59	43	Black oak, shortleaf pine
	Shortleaf pine-----	54	71	
Aslinger-----	Black oak-----	60	43	Black oak, shortleaf pine, white oak
	Northern red oak----	60	43	
	Shortleaf pine-----	60	86	
	White oak-----	55	43	
71257: Townhole, karst-----	Black oak-----	59	43	Black oak, shortleaf pine
	Shortleaf pine-----	54	71	
Aslinger, karst-----	Black oak-----	60	43	Black oak, northern red oak, shortleaf pine, white oak
	Northern red oak----	60	43	
	Shortleaf pine-----	60	86	
	White oak-----	55	43	
71258: Maplegrove.				
Carl-----	Eastern cottonwood--	80	86	---
	Pecan-----	50	0	
	Pin oak-----	75	57	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
71752:				
Bearthicket-----	Cherrybark oak-----	95	129	Black walnut, green
	Pin oak-----	96	86	ash, northern red
	Sweetgum-----	98	129	oak, white oak
	Tuliptree-----	94	100	
71753:				
Cedargap-----	Black oak-----	66	43	Black walnut, green
	Eastern cottonwood--	94	114	ash, Shumard's
	Northern red oak----	68	57	oak, white oak
Pinerun-----	American sycamore---	90	114	Black oak, black
	Black oak-----	60	43	walnut, northern
				red oak
71754:				
Waben-----	Black oak-----	71	57	Black oak,
	Northern red oak----	66	57	shortleaf pine
	Shortleaf pine-----	70	114	
	White oak-----	66	114	
Cedargap-----	Black oak-----	66	43	Black walnut, green
	Eastern cottonwood--	94	114	ash, Shumard's
	Northern red oak----	68	57	oak, white oak
71755:				
Cedargap-----	Black oak-----	66	43	Black walnut, green
	Eastern cottonwood--	94	114	ash, Shumard's
	Northern red oak----	68	57	oak, white oak
Gladden-----	American sycamore---	85	86	Black walnut,
	White oak-----	75	57	northern red oak,
				white ash, white
				oak
73116:				
Pomme-----	Northern red oak----	65	43	Black walnut,
	White oak-----	65	43	shortleaf pine,
				white oak
73120:				
Rueter-----	Black oak-----	74	57	Black oak, white
	Northern red oak----	---	---	oak
	Post oak-----	---	---	
	White oak-----	75	57	
Gasconade-----	Chinkapin oak-----	41	29	---
	Eastern redcedar----	27	29	
Rock outcrop.				
73349:				
Boskydell-----	Black oak-----	59	43	Black oak, northern
	Mockernut hickory---	---	---	red oak
	Northern red oak----	---	---	
	White oak-----	---	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
73350: Clinkenbeard-----	Post oak-----	40	29	Eastern redcedar
Gobbler-----	Black oak-----	58	43	Black oak, shortleaf pine
	White oak-----	57	43	
73351: Sonsac-----	Black oak-----	54	43	Black oak, eastern redcedar, shortleaf pine
	Post oak-----	45	29	
	White oak-----	42	29	
Rueter-----	Black oak-----	59	43	Black oak, white oak
	Post oak-----	---	---	
	White oak-----	55	43	
73352: Jollymill-----	Black oak-----	57	43	Black oak, shortleaf pine
	White oak-----	55	43	
Bendavis-----	Black oak-----	54	43	Shortleaf pine
	Post oak-----	47	29	
	Shortleaf pine-----	55	86	
73353: Hailey-----	Black oak-----	58	43	Black oak, shortleaf pine
	Blackjack oak-----	---	---	
	Hickory-----	---	---	
	Post oak-----	---	---	
	White oak-----	56	43	
Sonsac-----	Black oak-----	54	43	Shortleaf pine
	Post oak-----	45	29	
	White oak-----	42	29	
73355: Moko-----	Eastern redcedar----	30	29	Eastern redcedar
Blueye-----	Eastern redcedar----	35	29	Eastern redcedar
Rock outcrop.				
73356: Moko-----	Eastern redcedar----	30	29	Eastern redcedar
Rock outcrop.				
73357: Moko-----	Eastern redcedar----	30	29	Eastern redcedar
Boskydell-----	Black oak-----	50	29	Eastern redcedar, shortleaf pine
	Eastern redcedar----	---	---	
	Post oak-----	44	29	
Rock outcrop.				
73358: Eldorado.				
Moko-----	Eastern redcedar----	30	29	---

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
73359: Bona.				
Moko-----	Eastern redcedar----	30	29	---
74640: Hootentown-----	Cherrybark oak-----	95	129	Black walnut, northern red oak, white ash, white oak
	Green ash-----	70	57	
	Pin oak-----	96	86	
	Sweetgum-----	98	129	
	Tuliptree-----	94	100	
99000. Pits, quarries				
99001. Water				
99003. Miscellaneous water				
99007. Dam				
99016: Water.				
Riverwash.				

Table 8a.--Forestland 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
70067: Pembroke, karst-----	Limited seasonally ponded (limited)	0.80	Limited seasonally ponded (limited)	0.80	Limited seasonally ponded (limited) low strength (moderately limited)	0.80 0.50	Limited seasonally ponded (limited)	0.80	Very limited ponded (wetness) (very limited) low strength (moderately limited)	1.00 0.50
70068: Bendavis, karst-----	Not limited		Not limited		Moderately limited low strength (moderately limited)	0.50	Not limited		Moderately limited low strength (moderately limited)	0.50
Jollymill, karst-----	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 low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.10
Crackerneck, karst-----	Slightly limited small stones (slightly limited)	0.04	Slightly limited small stones (slightly limited)	0.04	Moderately limited low strength (moderately limited)	0.50	Not limited		Moderately limited low strength (moderately limited)	0.50
70069: Jollymill, karst-----	Very limited small stones (limited)	0.99	Limited small stones (limited)	0.99	Slightly limited seasonal wetness (slightly limited)	0.10	Limited small stones (limited) seasonal wetness (slightly limited)	1.00 0.10	Slightly limited seasonal wetness (slightly limited)	0.10
Crackerneck, karst-----	Slightly limited small stones (slightly limited)	0.04	Slightly limited small stones (slightly limited)	0.04	Moderately limited low strength (moderately limited)	0.50	Not limited		Moderately limited low strength (moderately limited)	0.50

Table 8a.--Forestland 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
70070: Crackerneck, karst-----	Limited small stones (limited)	0.86	Limited small stones (limited) slope (moderately limited) surface stones (slightly limited)	0.86 0.34 0.02	Slightly limited seasonal wetness (slightly limited)	0.22	Limited small stones (limited) seasonal wetness (slightly limited)	0.87 0.22	Moderately limited slope (moderately limited) seasonal wetness (slightly limited)	0.45 0.22
Hailey, karst	Limited small stones (limited)	0.77	Limited small stones (limited) slope (moderately limited) surface stones (slightly limited)	0.77 0.34 0.02	Not limited		Limited small stones (limited)	0.77	Moderately limited slope (moderately limited)	0.45
70071: Sowcoon-----	Limited seasonally ponded (limited) small stones (slightly limited)	0.80 0.24	Limited seasonally ponded (limited) small stones (slightly limited)	0.80 0.24	Limited seasonally ponded (limited) low strength (moderately limited) seasonal wetness (moderately limited)	0.80 0.50 0.34	Limited seasonally ponded (limited) seasonal wetness (moderately limited) small stones (slightly limited)	0.80 0.34 0.01	Very limited ponded (wetness) (very limited) low strength (moderately limited) seasonal wetness (moderately limited)	1.00 0.50 0.34
Viburnum-----	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
70072: Rueter-----	Moderately limited small stones (moderately limited)	0.42	Moderately limited small stones (moderately limited) slope (moderately limited)	0.42 0.34	Not limited		Slightly limited small stones (slightly limited)	0.30	Moderately limited slippage potential (moderately limited) slope (moderately limited)	0.50 0.45

Table 8a.--Forestland 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
70072: Pomme-----	Not limited		Moderately limited slope (moderately limited)	0.34	Moderately limited low strength (moderately limited)	0.50	Not limited		Moderately limited slippage potential (moderately limited) low strength (moderately limited) slope (moderately limited)	0.50 0.50 0.45
70073: Beemont-----	Moderately limited surface stones (moderately limited) large stones (slightly limited)	0.42 0.03	Limited surface stones (limited) slope (moderately limited) large stones (moderately limited)	0.79 0.51 0.30	Moderately limited large surface stones (moderately limited)	0.60	Moderately limited large surface stones (moderately limited) large stones (slightly limited)	0.60 0.03	Limited slope (limited) large surface stones (moderately limited) surface stones (moderately limited)	0.83 0.60 0.42
70074: Townhole-----	Not limited		Not limited		Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.13	Slightly limited seasonal wetness (slightly limited)	0.13	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.13
70075: Waben-----	Very limited small stones (very limited) very sandy (surface) (moderately limited)	1.00 0.50	Very limited small stones (very limited) very sandy (surface) (moderately limited) slope (slightly limited)	1.00 0.50 0.10	Moderately limited very sandy (surface) (moderately limited)	0.50	Very limited small stones (very limited)	1.00	Limited slippage potential (limited) very sandy (surface) (moderately limited)	0.90 0.50
70076: Clarksville---	Moderately limited large stones (moderately limited)	0.50	Limited large stones (limited) slope (moderately limited) surface stones (slightly limited)	0.86 0.34 0.03	Not limited		Moderately limited large stones (moderately limited)	0.50	Moderately limited slope (moderately limited)	0.45

Table 8a.--Forestland 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
70076: Noark-----	Limited small stones (limited)	0.73	Limited small stones (limited) slope (moderately limited)	0.73 0.34	Not limited		Limited small stones (limited)	0.73	Moderately limited slippage potential (moderately limited) slope (moderately limited)	0.50 0.45
70077: Flagspring----	Moderately limited very sandy (surface) (moderately limited)	0.50	Moderately limited very sandy (surface) (moderately limited) slope (moderately limited)	0.50 0.34	Moderately limited very sandy (surface) (moderately limited)	0.50	Not limited		Moderately limited very sandy (surface) (moderately limited) slope (moderately limited)	0.50 0.45
70078: Goss-----	Very limited small stones (limited)	0.99	Limited small stones (limited) slope (moderately limited)	0.99 0.56	Not limited		Limited small stones (limited)	1.00	Limited slope (limited)	0.91
Rueter-----	Very limited small stones (limited)	0.99	Limited small stones (limited) slope (moderately limited)	0.99 0.56	Not limited		Limited small stones (limited)	1.00	Limited slope (limited)	0.91
70079: Viburnum-----	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 low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.25
Crackerneck---	Very limited small stones (limited)	0.99	Limited small stones (limited)	0.99	Slightly limited seasonal wetness (slightly limited)	0.22	Limited small stones (limited) seasonal wetness (slightly limited)	1.00 0.22	Slightly limited seasonal wetness (slightly limited)	0.22

Table 8a.--Forestland 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
70080:										
Noark-----	Limited small stones (limited)	0.86	Limited small stones (limited) slope (moderately limited)	0.86 0.34	Not limited		Limited small stones (limited)	0.87	Moderately limited slippage potential (moderately limited) slope (moderately limited)	0.50 0.45
Clarksville---	Slightly limited small stones (slightly limited)	0.15	Moderately limited slope (moderately limited) small stones (slightly limited) large stones (slightly limited)	0.34 0.15 0.00	Not limited		Not limited		Moderately limited slope (moderately limited)	0.45
Crackerneck, karst-----	Limited small stones (limited)	0.73	Limited small stones (limited) slope (slightly limited)	0.73 0.10	Slightly limited seasonal wetness (slightly limited)	0.29	Limited small stones (limited) seasonal wetness (slightly limited)	0.73 0.29	Slightly limited seasonal wetness (slightly limited)	0.29
70081:										
Rueter-----	Very limited small stones (very limited) very sandy (surface) (moderately limited) slope (slightly limited)	1.00 0.50 0.14	Very limited small stones (very limited) slope (limited) very sandy (surface) (moderately limited)	1.00 0.99 0.50	Moderately limited slope (moderately limited) very sandy (surface) (moderately limited)	0.60 0.50	Very limited small stones (very limited) slope (moderately limited)	1.00 0.60	Very limited slope (very limited) very sandy (surface) (moderately limited)	1.00 0.50
Goss-----	Limited small stones (limited) very sandy (surface) (moderately limited) slope (slightly limited)	0.70 0.50 0.14	Limited slope (limited) small stones (limited) very sandy (surface) (moderately limited)	0.99 0.70 0.50	Moderately limited slope (moderately limited) very sandy (surface) (moderately limited)	0.60 0.50	Limited small stones (limited) slope (moderately limited)	0.71 0.60	Very limited slope (very limited) very sandy (surface) (moderately limited)	1.00 0.50
Jollymill----	Limited small stones (limited) slope (slightly limited)	0.86 0.14	Limited slope (limited) small stones (limited)	0.99 0.86	Moderately limited slope (moderately limited) low strength (moderately limited)	0.60 0.50	Limited small stones (limited) slope (moderately limited)	0.87 0.60	Very limited slope (very limited) low strength (moderately limited)	1.00 0.50

Table 8a.--Forestland 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
70082: Paintbrush----	Limited small stones (limited)	0.80	Limited small stones (limited)	0.80	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.23	Limited small stones (limited) seasonal wetness (slightly limited)	0.80 0.23	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.23
Friendly-----	Not limited		Not limited		Moderately limited low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.49	Moderately limited seasonal wetness (moderately limited)	0.49	Moderately limited low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.49
70083: Eldorado-----	Moderately limited small stones (moderately limited)	0.42	Moderately limited small stones (moderately limited)	0.42	Not limited		Slightly limited small stones (slightly limited)	0.30	Not Limited	
70150: Moko-----	Very limited slope (very limited) small stones (moderately limited)	1.00 0.45	Very limited slope (very limited) small stones (moderately limited) large stones (slightly limited)	1.00 0.45 0.15	Very limited slope (very limited)	1.00	Very limited slope (very limited) small stones (moderately limited)	1.00 0.36	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	
71253: Hartville-----	Very limited small stones (limited)	0.99	Limited small stones (limited)	0.99	Moderately limited low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.49	Limited small stones (limited) seasonal wetness (moderately limited)	1.00 0.49	Moderately limited low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.49
71255: Britwater-----	Slightly limited small stones (slightly limited)	0.04	Slightly limited small stones (slightly limited)	0.04	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.--Forestland 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
71256: Townhole-----	Slightly limited small stones (slightly limited)	0.00	Slightly limited slope (slightly limited) small stones (slightly limited)	0.10  0.00	Moderately limited low strength (moderately limited)	0.50	Not limited		Moderately limited low strength (moderately limited)	0.50
Aslinger-----	Not limited		Slightly limited slope (slightly limited)	0.10	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50  0.28	Slightly limited seasonal wetness (slightly limited)	0.28	Moderately limited slippage potential (moderately limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.50  0.50  0.28
71257: Townhole, karst-----	Not limited		Not limited		Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50  0.23	Slightly limited seasonal wetness (slightly limited)	0.23	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50  0.23
Aslinger, karst-----	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
71258: Maplegrove----	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 low strength (moderately limited) seasonal wetness (slightly limited)	0.50  0.10

Table 8a.--Forestland 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
71258: Carl-----	Moderately limited seasonal wetness (moderately limited) stickiness (surface) (moderately limited)	0.60 0.50	Moderately limited seasonal wetness (moderately limited) stickiness (surface) (moderately limited)	0.60 0.50	Limited seasonal wetness (limited) stickiness (surface) (moderately limited) low strength (moderately limited)	0.76 0.50 0.50	Limited seasonal wetness (limited) stickiness (surface) (moderately limited)	0.76 0.50	Limited seasonal wetness (limited) stickiness (surface) (moderately limited) low strength (moderately limited)	0.76 0.50 0.50
71752: Bearthicket---	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
71753: Cedargap-----	Very limited small stones (very limited) stickiness (surface) (moderately limited)	1.00 0.50	Very limited small stones (very limited) stickiness (surface) (moderately limited)	1.00 0.50	Moderately limited stickiness (surface) (moderately limited)	0.50	Very limited small stones (very limited) stickiness (surface) (moderately limited)	1.00 0.50	Very limited flooding (very limited) stickiness (surface) (moderately limited)	1.00 0.50
Pinerun-----	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
71754: Waben-----	Very limited small stones (very limited) very sandy (surface) (moderately limited)	1.00 0.50	Very limited small stones (very limited) very sandy (surface) (moderately limited)	1.00 0.50	Moderately limited very sandy (surface) (moderately limited)	0.50	Very limited small stones (very limited)	1.00	Moderately limited very sandy (surface) (moderately limited)	0.50
Cedargap-----	Very limited small stones (very limited) stickiness (surface) (moderately limited)	1.00 0.50	Very limited small stones (very limited) stickiness (surface) (moderately limited)	1.00 0.50	Moderately limited stickiness (surface) (moderately limited)	0.50	Very limited small stones (very limited) stickiness (surface) (moderately limited)	1.00 0.50	Moderately limited flooding (moderately limited) stickiness (surface) (moderately limited)	0.60 0.50

Table 8a.--Forestland 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
71755: Cedargap-----	Very limited small stones (very limited) very sandy (surface) (moderately limited)	1.00  0.50	Very limited small stones (very limited) very sandy (surface) (moderately limited)	1.00  0.50	Moderately limited very sandy (surface) (moderately limited)	0.50	Very limited small stones (very limited)	1.00	Very limited flooding (very limited) very sandy (surface) (moderately limited)	1.00  0.50
Gladden-----	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
73116: Pomme-----	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
73120: Rueter-----	Very limited small stones (very limited) slope (moderately limited)	1.00  0.52	Very limited slope (very limited) small stones (very limited)	1.00  1.00	Very limited slope (very limited)	1.00	Very limited slope (very limited) small stones (very limited)	1.00  1.00	Very limited slope (very limited) slippage potential (moderately limited)	1.00  0.50
Gasconade-----	Moderately limited stickiness (surface) (moderately limited) slope (moderately limited) small stones (slightly limited)	0.50  0.46  0.04	Very limited slope (very limited) stickiness (surface) (moderately limited) small stones (slightly limited)	1.00  0.50  0.04	Very limited slope (very limited) stickiness (surface) (moderately limited)	1.00  0.50	Very limited slope (very limited) stickiness (surface) (moderately limited)	1.00  0.50	Very limited slope (very limited) stickiness (surface) (moderately limited)	1.00  0.50
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73349: Boskydell-----	Limited small stones (limited) stickiness (surface) (moderately limited) slope (slightly limited)	0.73  0.50  0.01	Limited small stones (limited) slope (moderately limited) stickiness (surface) (moderately limited)	0.73  0.60  0.50	Moderately limited stickiness (surface) (moderately limited) seasonal wetness (moderately limited) slope (slightly limited)	0.50  0.39  0.05	Limited small stones (limited) stickiness (surface) (moderately limited) seasonal wetness (moderately limited)	0.73  0.50  0.39	Limited slope (limited) stickiness (surface) (moderately limited) slippage potential (moderately limited)	0.99  0.50  0.50

Table 8a.--Forestland 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						
73350: Clinkenbeard--	Moderately limited large stones (moderately limited)	0.56	Limited large stones (limited)	0.94	Not limited		Moderately limited large stones (moderately limited)	0.56	Not Limited	
	small stones (slightly limited)	0.03	slope (slightly limited)	0.10						
			small stones (slightly limited)	0.03						
Gobbler-----	Moderately limited large stones (moderately limited)	0.30	Moderately limited large stones (moderately limited)	0.60	Moderately limited low strength (moderately limited)	0.50	Moderately limited large stones (moderately limited)	0.30	Moderately limited slippage potential (moderately limited)	0.50
	small stones (slightly limited)	0.14	small stones (slightly limited)	0.14					low strength (moderately limited)	0.50
			slope (slightly limited)	0.10						
73351: Sonsac-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Moderately limited slope (moderately limited)	0.60	Very limited small stones (very limited)	1.00	Very limited slope (very limited)	1.00
	slope (slightly limited)	0.14	slope (limited)	0.99			slope (moderately limited)	0.60	slippage potential (moderately limited)	0.50
Rueter-----	Moderately limited small stones (moderately limited)	0.53	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	small stones (moderately limited)	0.53			small stones (moderately limited)	0.48	slippage potential (moderately limited)	0.50
73352: Jollymill----	Moderately limited small stones (moderately limited)	0.42	Moderately limited small stones (moderately limited)	0.42	Slightly limited seasonal wetness (slightly limited)	0.15	Slightly limited small stones (slightly limited)	0.30	Moderately limited slope (moderately limited)	0.45
			slope (moderately limited)	0.34			seasonal wetness (slightly limited)	0.15	seasonal wetness (slightly limited)	0.15
Bendavis-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Slightly limited seasonal wetness (slightly limited)	0.22	Very limited small stones (very limited)	1.00	Moderately limited slope (moderately limited)	0.45
			slope (moderately limited)	0.34			seasonal wetness (slightly limited)	0.22	seasonal wetness (slightly limited)	0.22

Table 8a.--Forestland 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
73353:										
Hailey-----	Limited small stones (limited) slope (moderately limited)	0.76 0.52	Very limited slope (very limited) small stones (limited)	1.00 0.76	Very limited slope (very limited)	1.00	Very limited slope (very limited) small stones (limited)	1.00 0.76	Very limited slope (very limited)	1.00
Sonsac-----	Limited large stones (limited) slope (moderately limited) very sandy (surface) (moderately limited)	0.79 0.52 0.50	Very limited slope (very limited) large stones >35% (very limited) very sandy (surface) (moderately limited)	1.00 1.00 0.50	Very limited slope (very limited) very sandy (surface) (moderately limited)	1.00 0.50	Very limited slope (very limited) large stones (limited)	1.00 0.79	Very limited slope (very limited) very sandy (surface) (moderately limited)	1.00 0.50
73355:										
Moko-----	Moderately limited stickiness (surface) (moderately limited) small stones (moderately limited)	0.50 0.43	Very limited restrictive layer (very limited) stickiness (surface) (moderately limited) small stones (moderately limited)	1.00 0.50 0.43	Moderately limited stickiness (surface) (moderately limited)	0.50	Very limited restrictive layer (very limited) stickiness (surface) (moderately limited) small stones (moderately limited)	1.00 0.50 0.31	Moderately limited slippage potential (moderately limited) stickiness (surface) (moderately limited) slope (moderately limited)	0.50 0.50 0.45
Blueye-----	Slightly limited small stones (slightly limited)	0.03	Moderately limited slope (moderately limited) small stones (slightly limited) surface stones (slightly limited)	0.34 0.03 0.01	Not limited		Not limited		Moderately limited slippage potential (moderately limited) slope (moderately limited)	0.50 0.45
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73356:										
Moko-----	Slightly limited slope (slightly limited) surface stones (slightly limited) small stones (slightly limited)	0.23 0.16 0.11	Very limited slope (very limited) surface stones (limited) large stones (slightly limited)	1.00 0.63 0.21	Limited slope (limited) large surface stones (slightly limited)	0.87 0.16	Limited slope (limited) large surface stones (slightly limited)	0.87 0.16	Very limited slope (very limited) slippage potential (moderately limited) large surface stones (slightly limited)	1.00 0.50 0.16
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8a.--Forestland 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
73357:										
Moko-----	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 (limited)	0.60	restrictive layer (very limited)	1.00			restrictive layer (very limited)	1.00	slippage potential (moderately limited)	0.50
			large stones >35% (very limited)	0.99			large stones (limited)	0.60		
Boskydell----	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
	stickiness (surface) (moderately limited)	0.50	large stones (limited)	0.73	seasonal wetness (moderately limited)	0.56	seasonal wetness (moderately limited)	0.56	slippage potential (limited)	0.90
	large stones (moderately limited)	0.40	stickiness (surface) (moderately limited)	0.50	stickiness (surface) (moderately limited)	0.50	stickiness (surface) (moderately limited)	0.50	seasonal wetness (moderately limited)	0.56
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73358:										
Eldorado-----	Slightly limited small stones (slightly limited)	0.05	Slightly limited small stones (slightly limited)	0.05	Not limited		Not limited		Not Limited	
Moko-----	Moderately limited small stones (moderately limited)	0.60	Moderately limited small stones (moderately limited)	0.60	Not limited		Moderately limited small stones (moderately limited)	0.60	Not Limited	
73359:										
Bona-----	Moderately limited large stones (moderately limited)	0.30	Moderately limited large stones (moderately limited)	0.60	Not limited		Moderately limited large stones (moderately limited)	0.30	Limited slope (limited)	0.76
	small stones (slightly limited)	0.21	slope (moderately limited)	0.47						
			small stones (slightly limited)	0.21						
Moko-----	Moderately limited small stones (moderately limited)	0.60	Moderately limited small stones (moderately limited)	0.60	Not limited		Moderately limited small stones (moderately limited)	0.60	Limited slope (limited)	0.76
			slope (moderately limited)	0.47						

Table 8a.--Forestland 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
74640: Hootentown----	Not limited		Not limited		Moderately limited low strength (moderately limited)	0.50	Not limited		Moderately limited low strength (moderately limited)	0.50
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99007: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99016: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Riverwash----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forestland 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
70067: Pembroke, karst-----	Slightly limited slope/erodibility (slightly limited)	0.22	Slightly limited slope/erodibility (slightly limited)	0.05	Limited low strength (limited)	0.80	Limited seasonally ponded (limited) low strength (moderately limited)	0.80 0.50	Not limited	
70068: Bendavis, karst-----	Slightly limited slope/erodibility (slightly limited)	0.22	Slightly limited slope/erodibility (slightly limited)	0.04	Limited low strength (limited)	0.80	Moderately limited low strength (moderately limited)	0.50	Slightly limited droughty (slightly limited)	0.25
Jollymill, karst-----	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 0.10	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.10	Slightly limited soil reaction (slightly limited)	0.06
Crackerneck, karst-----	Slightly limited slope/erodibility (slightly limited)	0.22	Slightly limited slope/erodibility (slightly limited)	0.04	Limited low strength (limited)	0.80	Moderately limited low strength (moderately limited)	0.50	Slightly limited droughty (slightly limited)	0.01
70069: Jollymill, karst-----	Slightly limited slope/erodibility (slightly limited)	0.25	Slightly limited slope/erodibility (slightly limited)	0.08	Slightly limited seasonal wetness (slightly limited)	0.10	Slightly limited seasonal wetness (slightly limited)	0.10	Slightly limited droughty (slightly limited)	0.23
Crackerneck, karst-----	Moderately limited slope/erodibility (moderately limited)	0.56	Slightly limited slope/erodibility (slightly limited)	0.10	Limited low strength (limited)	0.80	Moderately limited low strength (moderately limited)	0.50	Not limited	

Table 8b.--Forestland 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
70070: Crackerneck, karst-----	Moderately limited slope/erodibility (moderately limited)	0.56	Slightly limited slope/erodibility (slightly limited)	0.18	Slightly limited seasonal wetness (slightly limited)	0.22	Moderately limited slope (moderately limited) seasonal wetness (slightly limited)	0.45 0.22	Limited droughty (limited)	0.61
Hailey, karst	Moderately limited slope/erodibility (moderately limited)	0.56	Slightly limited slope/erodibility (slightly limited)	0.18	Not limited		Moderately limited slope (moderately limited)	0.45	Limited droughty (limited)	0.66
70071: Sowcoon-----	Slightly limited slope/erodibility (slightly limited)	0.06	Slightly limited slope/erodibility (slightly limited)	0.01	Limited low strength (limited) seasonal wetness (moderately limited)	0.80 0.34	Limited seasonally ponded (limited) low strength (moderately limited) seasonal wetness (moderately limited)	0.80 0.50 0.34	Slightly limited seasonal wetness (slightly limited)	0.11
Viburnum-----	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 0.20	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.20	Not limited	
70072: Rueter-----	Moderately limited slope/erodibility (moderately limited)	0.56	Slightly limited slope/erodibility (slightly limited)	0.18	Not limited		Moderately limited slippage potential (moderately limited) slope (moderately limited)	0.50 0.45	Slightly limited droughty (slightly limited)	0.01
Pomme-----	Very limited slope/erodibility (very limited)	1.00	Slightly limited slope/erodibility (slightly limited)	0.22	Limited low strength (limited)	0.80	Moderately limited slippage potential (moderately limited) low strength (moderately limited) slope (moderately limited)	0.50 0.50 0.45	Not limited	

Table 8b.--Forestland 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
70073: Beemont-----	Limited slope/erodibility (limited)	0.81	Slightly limited slope/erodibility (slightly limited)	0.25	Moderately limited low strength (moderately limited)	0.50	Limited slope (limited) large surface stones (moderately limited) surface stones (moderately limited)	0.83 0.60 0.42	Not limited	
70074: Townhole-----	Moderately limited slope/erodibility (moderately limited)	0.33	Slightly limited slope/erodibility (slightly limited)	0.06	Limited low strength (limited) seasonal wetness (slightly limited)	0.80 0.13	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.13	Not limited	
70075: Waben-----	Slightly limited slope/erodibility (slightly limited)	0.23	Slightly limited slope/erodibility (slightly limited)	0.12	Not limited		Limited slippage potential (limited) very sandy (surface) (moderately limited)	0.90 0.50	Not limited	
70076: Clarksville---	Moderately limited slope/erodibility (moderately limited)	0.35	Slightly limited slope/erodibility (slightly limited)	0.18	Not limited		Moderately limited slope (moderately limited)	0.45	Slightly limited droughty (slightly limited)	0.01
Noark-----	Moderately limited slope/erodibility (moderately limited)	0.35	Slightly limited slope/erodibility (slightly limited)	0.18	Not limited		Moderately limited slippage potential (moderately limited) slope (moderately limited)	0.50 0.45	Slightly limited droughty (slightly limited)	0.23
70077: Flagspring----	Moderately limited slope/erodibility (moderately limited)	0.56	Slightly limited slope/erodibility (slightly limited)	0.18	Not limited		Moderately limited very sandy (surface) (moderately limited) slope (moderately limited)	0.50 0.45	Not limited	

Table 8b.--Forestland 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
70078:										
Goss-----	Limited slope/erodibility (limited)	0.88	Slightly limited slope/erodibility (slightly limited)	0.27	Not limited		Limited slope (limited)	0.91	Limited droughty (limited)	0.81
Rueter-----	Limited slope/erodibility (limited)	0.88	Slightly limited slope/erodibility (slightly limited)	0.27	Not limited		Limited slope (limited)	0.91	Very limited droughty (very limited)	1.00
70079:										
Viburnum-----	Slightly limited slope/erodibility (slightly limited)	0.22	Slightly limited slope/erodibility (slightly limited)	0.05	Limited low strength (limited)	0.80	Moderately limited low strength (moderately limited)	0.50	Not limited	
					seasonal wetness (slightly limited)	0.25	seasonal wetness (slightly limited)	0.25		
Crackerneck---	Slightly limited slope/erodibility (slightly limited)	0.12	Slightly limited slope/erodibility (slightly limited)	0.04	Slightly limited seasonal wetness (slightly limited)	0.22	Slightly limited seasonal wetness (slightly limited)	0.22	Slightly limited droughty (slightly limited)	0.00
70080:										
Noark-----	Moderately limited slope/erodibility (moderately limited)	0.35	Slightly limited slope/erodibility (slightly limited)	0.18	Not limited		Moderately limited slippage potential (moderately limited)	0.50	Slightly limited droughty (slightly limited)	0.15
							slope (moderately limited)	0.45		
Clarksville---	Moderately limited slope/erodibility (moderately limited)	0.35	Slightly limited slope/erodibility (slightly limited)	0.18	Not limited		Moderately limited slope (moderately limited)	0.45	Slightly limited droughty (slightly limited)	0.01
Crackerneck, karst-----	Moderately limited slope/erodibility (moderately limited)	0.38	Slightly limited slope/erodibility (slightly limited)	0.12	Slightly limited seasonal wetness (slightly limited)	0.29	Slightly limited seasonal wetness (slightly limited)	0.29	Not limited	
70081:										
Rueter-----	Very limited slope/erodibility (very limited)	1.00	Moderately limited slope/erodibility (moderately limited)	0.49	Not limited		Very limited slope (very limited)	1.00	Limited droughty (limited)	0.93
							very sandy (surface) (moderately limited)	0.50		

Table 8b.--Forestland 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
70081: Goss-----	Limited slope/erodibility (limited)	0.96	Moderately limited slope/erodibility (moderately limited)	0.49	Not limited		Very limited slope (very limited) very sandy (surface) (moderately limited)	1.00 0.50	Slightly limited droughty (slightly limited)	0.20
Jollymill----	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) low strength (moderately limited)	1.00 0.50	Not limited	
70082: Paintbrush----	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 0.23	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.23	Not limited	
Friendly-----	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 0.49	Moderately limited low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.49	Moderately limited seasonal wetness (moderately limited)	0.39
70083: Eldorado-----	Moderately limited slope/erodibility (moderately limited)	0.31	Slightly limited slope/erodibility (slightly limited)	0.10	Not limited		Not limited		Not limited	
70150: Moko-----	Very limited slope/erodibility (very limited)	1.00	Very limited slope/erodibility (very limited)	1.00	Not limited		Very limited slope (very limited) slippage potential (moderately limited)	1.00 0.50	Limited droughty (limited) soil reaction (limited)	0.96 0.78
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forestland 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
71253: Hartville-----	Slightly limited slope/erodibility (slightly limited)	0.22	Slightly limited slope/erodibility (slightly limited)	0.04	Limited low strength (limited) seasonal wetness (moderately limited)	0.80 0.49	Moderately limited low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.49	Moderately limited seasonal wetness (moderately limited)	0.39
71255: Britwater-----	Slightly limited slope/erodibility (slightly limited)	0.25	Slightly limited slope/erodibility (slightly limited)	0.08	Limited low strength (limited)	0.80	Moderately limited slippage potential (moderately limited) low strength (moderately limited)	0.50 0.50	Not limited	
71256: Townhole-----	Limited slope/erodibility (limited)	0.67	Slightly limited slope/erodibility (slightly limited)	0.15	Limited low strength (limited)	0.80	Moderately limited low strength (moderately limited)	0.50	Not limited	
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 0.28	Moderately limited slippage potential (moderately limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.50 0.28	Not limited	
71257: Townhole, karst-----	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 0.23	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.23	Not limited	
Aslinger, karst-----	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 0.10	Moderately limited slippage potential (moderately limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.50 0.10	Not limited	

Table 8b.--Forestland 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
71258: Maplegrove----	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 0.10	Moderately limited low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.10	Not limited	
Carl-----	Slightly limited slope/erodibility (slightly limited)	0.06	Slightly limited slope/erodibility (slightly limited)	0.01	Limited low strength (limited) seasonal wetness (limited)	0.80 0.76	Limited seasonal wetness (limited) stickiness (surface) (moderately limited) low strength (moderately limited)	0.76 0.50 0.50	Limited seasonal wetness (limited)	0.76
71752: 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 flooding (moderately limited) low strength (moderately limited)	0.60 0.50	Moderately limited flooding (moderately limited)	0.60
71753: Cedargap-----	Slightly limited slope/erodibility (slightly limited)	0.06	Slightly limited slope/erodibility (slightly limited)	0.02	Not limited		Very limited flooding (very limited) stickiness (surface) (moderately limited)	1.00 0.50	Very limited droughty (very limited) flooding (limited)	1.00 0.90
Pinerun-----	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) low strength (moderately limited)	0.60 0.50	Moderately limited flooding (moderately limited)	0.60
71754: Waben-----	Slightly limited slope/erodibility (slightly limited)	0.25	Slightly limited slope/erodibility (slightly limited)	0.08	Not limited		Moderately limited very sandy (surface) (moderately limited)	0.50	Limited droughty (limited)	0.98
Cedargap-----	Slightly limited slope/erodibility (slightly limited)	0.06	Slightly limited slope/erodibility (slightly limited)	0.02	Not limited		Moderately limited flooding (moderately limited) stickiness (surface) (moderately limited)	0.60 0.50	Very limited droughty (very limited) flooding (moderately limited)	1.00 0.60

Table 8b.--Forestland 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
71755: Cedargap-----	Slightly limited slope/erodibility (slightly limited)	0.06	Slightly limited slope/erodibility (slightly limited)	0.02	Not limited		Very limited flooding (very limited) very sandy (surface) (moderately limited)	1.00 0.50	Very limited droughty (very limited) flooding (limited)	1.00 0.90
Gladden-----	Slightly limited slope/erodibility (slightly limited)	0.22	Slightly limited slope/erodibility (slightly limited)	0.04	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
73116: Pomme-----	Moderately limited slope/erodibility (moderately limited)	0.44	Slightly limited slope/erodibility (slightly limited)	0.08	Limited low strength (limited)	0.80	Moderately limited slippage potential (moderately limited) low strength (moderately limited)	0.50 0.50	Not limited	
73120: Rueter-----	Very limited slope/erodibility (very limited)	1.00	Limited slope/erodibility (limited)	0.94	Not limited		Very limited slope (very limited) slippage potential (moderately limited)	1.00 0.50	Not limited	
Gasconade-----	Very limited slope/erodibility (very limited)	1.00	Limited slope/erodibility (limited)	0.88	Not limited		Very limited slope (very limited) stickiness (surface) (moderately limited)	1.00 0.50	Limited droughty (limited)	0.86
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73349: Boskydell-----	Limited slope/erodibility (limited)	0.94	Slightly limited slope/erodibility (slightly limited)	0.29	Moderately limited seasonal wetness (moderately limited)	0.39	Limited slope (limited) slippage potential (moderately limited) stickiness (surface) (moderately limited)	0.99 0.50 0.50	Limited droughty (limited) seasonal wetness (slightly limited)	0.78 0.19

Table 8b.--Forestland 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
73350: Clinkenbeard--	Slightly limited slope/erodibility (slightly limited)	0.23	Slightly limited slope/erodibility (slightly limited)	0.12	Not limited		Not limited		Limited droughty (very limited)	1.00
Gobbler-----	Moderately limited slope/erodibility (moderately limited)	0.38	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	
73351: Sonsac-----	Limited slope/erodibility (limited)	0.96	Moderately limited slope/erodibility (moderately limited)	0.49	Not limited		Very limited slope (very limited) slippage potential (moderately limited)	1.00 0.50	Limited droughty (limited)	0.85
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 (moderately limited)	1.00 0.50	Moderately limited droughty (moderately limited)	0.47
73352: Jollymill----	Moderately limited slope/erodibility (moderately limited)	0.56	Slightly limited slope/erodibility (slightly limited)	0.18	Slightly limited seasonal wetness (slightly limited)	0.15	Moderately limited slope (moderately limited) seasonal wetness (slightly limited)	0.45 0.15	Not limited	
Bendavis-----	Moderately limited slope/erodibility (moderately limited)	0.35	Slightly limited slope/erodibility (slightly limited)	0.18	Slightly limited seasonal wetness (slightly limited)	0.22	Moderately limited slope (moderately limited) seasonal wetness (slightly limited)	0.45 0.22	Limited droughty (limited)	0.98
73353: Hailey-----	Very limited slope/erodibility (very limited)	1.00	Limited slope/erodibility (limited)	0.94	Not limited		Very limited slope (very limited)	1.00	Moderately limited droughty (moderately limited)	0.31

Table 8b.--Forestland 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
73353: Sonsac-----	Very limited slope/erodibility (very limited)	1.00	Limited slope/erodibility (limited)	0.94	Not limited		Very limited slope (very limited) very sandy (surface) (moderately limited)	1.00 0.50	Limited droughty (limited)	0.94
73355: Moko-----	Moderately limited slope/erodibility (moderately limited)	0.35	Slightly limited slope/erodibility (slightly limited)	0.18	Not limited		Moderately limited slippage potential (moderately limited) stickiness (surface) (moderately limited) slope (moderately limited)	0.50 0.50 0.45	Very limited droughty (very limited)	1.00
Blueye-----	Moderately limited slope/erodibility (moderately limited)	0.56	Slightly limited slope/erodibility (slightly limited)	0.18	Moderately limited low strength (moderately limited)	0.50	Moderately limited slippage potential (moderately limited) slope (moderately limited)	0.50 0.45	Not limited	
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73356: Moko-----	Very limited slope/erodibility (very limited)	1.00	Limited slope/erodibility (limited)	0.63	Not limited		Very limited slope (very limited) slippage potential (moderately limited) large surface stones (slightly limited)	1.00 0.50 0.16	Limited droughty (very limited)	1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73357: Moko-----	Very limited slope/erodibility (very limited)	1.00	Very limited slope/erodibility (very limited)	1.00	Not limited		Very limited slope (very limited) slippage potential (moderately limited)	1.00 0.50	Very limited droughty (very limited) soil reaction (slightly limited)	1.00 0.00

Table 8b.--Forestland 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
73357: Boskydell-----	Very limited slope/erodibility (very limited)	1.00	Very limited slope/erodibility (very limited)	1.00	Moderately limited seasonal wetness (moderately limited)	0.56	Very limited slope (very limited) slippage potential (limited) seasonal wetness (moderately limited)	1.00 0.90 0.56	Moderately limited droughty (moderately limited) seasonal wetness (moderately limited)	0.55 0.51
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73358: Eldorado-----	Moderately limited slope/erodibility (moderately limited)	0.31	Slightly limited slope/erodibility (slightly limited)	0.10	Not limited		Not limited		Not limited	
Moko-----	Moderately limited slope/erodibility (moderately limited)	0.31	Slightly limited slope/erodibility (slightly limited)	0.10	Not limited		Not limited		Limited droughty (limited)	0.88
73359: Bona-----	Moderately limited slope/erodibility (moderately limited)	0.46	Slightly limited slope/erodibility (slightly limited)	0.24	Not limited		Limited slope (limited)	0.76	Very limited droughty (very limited)	1.00
Moko-----	Limited slope/erodibility (limited)	0.75	Slightly limited slope/erodibility (slightly limited)	0.24	Not limited		Limited slope (limited)	0.76	Limited droughty (limited)	0.63
74640: Hootentown----	Slightly limited slope/erodibility (slightly limited)	0.17	Slightly limited slope/erodibility (slightly limited)	0.04	Limited low strength (limited)	0.80	Moderately limited low strength (moderately limited)	0.50	Not limited	
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forestland 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								
99007: Dam-----	Not rated									
99016: Water-----	Not rated									
Riverwash----	Not rated									

Table 9.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
70067: Pembroke, karst-----	American hazelnut; downy arrowwood; 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
70068: Bendavis, karst-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Jollymill, karst-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Crackerneck, karst-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
70069: Jollymill, karst-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Crackerneck, karst-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; 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
70070: Crackerneck, karst-----	Coralberry-----	American plum; blackhaw; blackjack oak; cockspur hawthorn; eastern hophornbeam; eastern redbud; eastern redcedar; farkleberry; flowering dogwood; fragrant sumac; gray dogwood; roughleaf dogwood; rusty blackhaw; smooth sumac; Washington hawthorn	Black hickory; blackgum; chinkapin oak; common serviceberry; persimmon; pignut hickory; post oak; red pine; sassafras; shingle oak; shortleaf pine; southern red oak	Bitternut hickory; black oak; mockernut hickory; northern red oak; scarlet oak; shagbark hickory; white ash	---
Hailey, karst-----	Coralberry-----	American plum; blackhaw; blackjack oak; cockspur hawthorn; eastern hophornbeam; eastern redbud; eastern redcedar; farkleberry; flowering dogwood; fragrant sumac; gray dogwood; roughleaf dogwood; rusty blackhaw; smooth sumac; Washington hawthorn	Black hickory; blackgum; chinkapin oak; common serviceberry; persimmon; pignut hickory; post oak; red pine; sassafras; shingle oak; shortleaf pine; southern red oak	Bitternut hickory; black oak; mockernut hickory; northern red oak; scarlet oak; shagbark hickory; white ash	---
70071: Sowcoon-----	Buttonbush; ninebark	Possumhaw; sandbar willow	Black willow; bur oak; green hawthorn	Baldcypress; green ash; pecan; red maple; swamp white oak; sweetgum	Eastern cottonwood; silver maple
Viburnum-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; 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
70072: Rueter-----	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	---
Pomme-----	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	---
70073: Beemont-----	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	---
70074: Townhole-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
70075: Waben-----	Common lilac; fragrant sumac	Amur maple; gray dogwood	Austrian pine; bur oak; common hackberry; eastern redcedar; green ash; Russian olive; shortleaf pine	Honeylocust-----	---
70076: Clarksville-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Noark-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; 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
70077: Flagspring-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
70078: Goss-----	Coralberry-----	American plum; blackhaw; blackjack oak; cockspur hawthorn; eastern hophornbeam; eastern redbud; eastern redcedar; farkleberry; flowering dogwood; fragrant sumac; gray dogwood; roughleaf dogwood; rusty blackhaw; smooth sumac; Washington hawthorn	Black hickory; blackgum; chinkapin oak; common serviceberry; persimmon; pignut hickory; post oak; red pine; sassafras; shingle oak; shortleaf pine; southern red oak	Bitternut hickory; black oak; mockernut hickory; northern red oak; scarlet oak; shagbark hickory; white ash	---
Rueter-----	Coralberry-----	American plum; blackhaw; blackjack oak; cockspur hawthorn; eastern hophornbeam; eastern redbud; eastern redcedar; farkleberry; flowering dogwood; fragrant sumac; gray dogwood; roughleaf dogwood; rusty blackhaw; smooth sumac; Washington hawthorn	Black hickory; blackgum; chinkapin oak; common serviceberry; persimmon; pignut hickory; post oak; red pine; sassafras; shingle oak; shortleaf pine; southern red oak	Bitternut hickory; black oak; mockernut hickory; northern red oak; scarlet oak; shagbark hickory; white ash	---
70079: Viburnum-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; 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
70079: Crackerneck-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
70080: Noark-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Clarksville-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Crackerneck, karst-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
70081: Rueter-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Goss-----	Fragrant sumac-----	American plum; gray dogwood; southern arrowwood	Eastern redbud; eastern redcedar; Washington hawthorn	Green ash; northern red oak; tuliptree; white fir	Eastern white pine
Jollymill-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
70082: Paintbrush-----	American hazelnut; downy arrowwood; 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
70082: Friendly-----	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	---
70083: Eldorado-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
70150: Moko.  Rock outcrop.					
71253: Hartville-----	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	---
71255: Britwater-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
71256: Townhole-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Aslinger-----	Common ninebark; coralberry; fragrant sumac	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
71257: Townhole, karst-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; 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
71257: Aslinger, karst-----	Common ninebark; coralberry; fragrant sumac	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
71258: Maplegrove-----	Common ninebark; fragrant sumac	Amur maple; gray dogwood; possumhaw	Eastern redcedar	Austrian pine; common hackberry; honeylocust; Norway spruce; pin oak	---
Carl-----	Buttonbush; common elderberry; common ninebark; gray dogwood; redosier dogwood; silky dogwood	Cockspur hawthorn; hazel alder; nannyberry; roughleaf dogwood	Arborvitae; blackgum; common hackberry; green hawthorn; overcup oak	Baldcypress; green ash; red maple; river birch; swamp white oak; sweetgum; willow oak	Eastern cottonwood; pin oak
71752: Bearthicket-----	American hazelnut; 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
71753: Cedargap-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Pinerun-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
71754: Waben-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Cedargap-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; 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
71755: Cedargap-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
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
73116: Pomme-----	Coralberry; fragrant sumac	Common serviceberry; gray dogwood; southern arrowwood	Common persimmon; eastern redcedar; Washington hawthorn	Black walnut; common hackberry; green ash	Eastern white pine
73120: Rueter-----	Common lilac; fragrant sumac	Gray dogwood-----	Bur oak; eastern redbud; eastern redcedar; green ash; hackberry; Russian olive	Austrian pine; honeylocust	---
Gasconade.					
Rock outcrop.					
73349: Boskydell-----	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	---
73350: Clinkenbeard-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Gobbler-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; 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	
73351: Sonsac-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---	
Rueter-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---	
73352: Jollymill-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---	
Bendavis-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---	
73353: Hailey-----	Common lilac; fragrant sumac	Eastern redbud; eastern redcedar; gray dogwood; Russian olive	Austrian pine; bur oak; green ash; hackberry	Honeylocust-----	---	
Sonsac-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---	
73355: Moko.	Blueye-----	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	---
Rock outcrop.						
73356: Moko.						
Rock outcrop.						

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
73357: Moko.					
Boskydell-----	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	---
Rock outcrop.					
73358: Eldorado-----	Coralberry; fragrant sumac; ninebark	Eastern redbud; eastern redcedar; flowering dogwood; gray dogwood	Common serviceberry; persimmon; post oak; shingle oak; shortleaf pine	Black oak; mockernut hickory; northern red oak; white ash	---
Moko.					
73359: Bona.					
Moko.					
74640: Hootentown-----	---	Amur maple; fragrant sumac; gray dogwood; possumhaw	Black walnut; eastern redcedar	Cherrybark oak; green ash; shortleaf pine; Virginia pine	Loblolly pine; tuliptree
99000. Pits, quarries					
99001. Water					
99003. Miscellaneous water					
99007. Dam					
99016: Water.					
Riverwash.					

Table 10.--Recreational 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	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
70067: Pembroke, karst---	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00
70068: Bendavis, karst---	Slightly limited too acid (slightly limited)	0.18	Slightly limited too acid (slightly limited)	0.18	Limited small stones (limited)	0.94	Not limited	
	small stones (slightly limited)	0.01	small stones (slightly limited)	0.01	depth to bedrock (slightly limited)	0.27		
					too acid (slightly limited)	0.18		
Jollymill, karst--	Slightly limited percs slowly (slightly limited)	0.26	Slightly limited percs slowly (slightly limited)	0.26	Slightly limited percs slowly (slightly limited)	0.26	Not limited	
					small stones (slightly limited)	0.00		
Crackerneck, karst	Moderately limited small stones (moderately limited)	0.33	Moderately limited small stones (moderately limited)	0.33	Very limited small stones (very limited)	1.00	Not limited	
	percs slowly (slightly limited)	0.26	percs slowly (slightly limited)	0.26	percs slowly (slightly limited)	0.26		
70069: Jollymill, karst--	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (limited)	1.00
	too acid (slightly limited)	0.18	too acid (slightly limited)	0.18	slope (moderately limited)	0.40		
	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	too acid (slightly limited)	0.18		

Table 10.--Recreational Site Development--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
70069:								
Crackerneck, karst	Moderately limited small stones (moderately limited)	0.33	Moderately limited small stones (moderately limited)	0.33	Very limited small stones (very limited)	1.00	Not limited	
	percs slowly (slightly limited)	0.26	percs slowly (slightly limited)	0.26	slope (limited)	0.78		
					percs slowly (slightly limited)	0.26		
70070:								
Crackerneck, karst	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited slope (very limited)	1.00	Limited small stones (limited)	0.87
	wetness (moderately limited)	0.59	wetness (moderately limited)	0.34	small stones (very limited)	1.00	wetness (moderately limited)	0.34
	percs slowly (slightly limited)	0.26	percs slowly (slightly limited)	0.26	wetness (moderately limited)	0.59	large surface stones (slightly limited)	0.17
Hailey, karst-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited small stones (limited)	0.77
	large surface stones (slightly limited)	0.17	large surface stones (slightly limited)	0.17	slope (very limited)	1.00	large surface stones (slightly limited)	0.17
	slope (slightly limited)	0.04	slope (slightly limited)	0.04	large stones (slightly limited)	0.01		
70071:								
Sowcoon-----	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00
	wetness (very limited)	1.00	small stones (limited)	1.00	wetness (very limited)	1.00	wetness (limited)	0.68
	small stones (limited)	1.00	wetness (limited)	0.68	small stones (very limited)	1.00	small stones (slightly limited)	0.01
Viburnum-----	Moderately limited wetness (moderately limited)	0.50	Slightly limited wetness (slightly limited)	0.28	Moderately limited wetness (moderately limited)	0.50	Slightly limited wetness (slightly limited)	0.28
	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13		

Table 10.--Recreational Site Development--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
70072: Rueter-----	Very limited small stones (very limited) slope (slightly limited)	1.00  0.04	Very limited small stones (very limited) slope (slightly limited)	1.00  0.04	Very limited small stones (very limited) slope (very limited)	1.00  1.00	Slightly limited small stones (slightly limited)	0.30
Pomme-----	Slightly limited slope (slightly limited)	0.04	Slightly limited slope (slightly limited)	0.04	Very limited slope (very limited) small stones (moderately limited)	1.00  0.30	Very limited erodes easily (very limited)	1.00
70073: Beemont-----	Very limited large surface stones (very limited) slope (limited) percs slowly (moderately limited)	1.00  0.84  0.48	Very limited large surface stones (very limited) slope (limited) percs slowly (moderately limited)	1.00  0.84  0.48	Very limited slope (very limited) large stones (limited) small stones (limited)	1.00  0.99  0.80	Very limited large surface stones (very limited) large stones (slightly limited)	1.00  0.03
70074: Townhole-----	Moderately limited wetness (moderately limited) percs slowly (slightly limited)	0.32  0.26	Slightly limited percs slowly (slightly limited) wetness (slightly limited)	0.26  0.09	Moderately limited small stones (moderately limited) wetness (moderately limited) percs slowly (slightly limited)	0.60  0.32  0.26	Slightly limited wetness (slightly limited)	0.09
70075: Waben-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited) slope (limited)	1.00  0.98	Very limited small stones (very limited)	1.00

Table 10.--Recreational Site Development--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
70076: Clarksville-----	Moderately limited large stones (moderately limited)	0.50	Moderately limited large stones (moderately limited)	0.50	Very limited large stones >25% (very limited)	1.00	Moderately limited large stones (moderately limited)	0.50
	small stones (slightly limited)	0.05	small stones (slightly limited)	0.05	slope (very limited)	1.00		
	slope (slightly limited)	0.04	slope (slightly limited)	0.04	small stones (limited)	0.98		
Noark-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited small stones (limited)	0.73
	slope (slightly limited)	0.04	slope (slightly limited)	0.04	slope (very limited)	1.00		
70077: Flagspring-----	Slightly limited too acid (slightly limited)	0.24	Slightly limited too acid (slightly limited)	0.24	Very limited slope (very limited)	1.00	Not limited	
	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	too acid (slightly limited)	0.24		
	slope (slightly limited)	0.04	slope (slightly limited)	0.04	percs slowly (slightly limited)	0.13		
70078: Goss-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (limited)	1.00
	slope (limited)	0.96	slope (limited)	0.96	slope (very limited)	1.00		
Rueter-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (limited)	1.00
	slope (limited)	0.96	slope (limited)	0.96	slope (very limited)	1.00		
70079: Viburnum-----	Limited wetness (limited)	0.75	Moderately limited wetness (moderately limited)	0.45	Limited wetness (limited)	0.75	Moderately limited wetness (moderately limited)	0.45
	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13		

Table 10.--Recreational Site Development--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
70079:								
Crackerneck-----	Very limited small stones (very limited) wetness (moderately limited) percs slowly (slightly limited)	1.00  0.59  0.26	Very limited small stones (very limited) wetness (moderately limited) percs slowly (slightly limited)	1.00  0.34  0.26	Very limited small stones (very limited) wetness (moderately limited) percs slowly (slightly limited)	1.00  0.59  0.26	Very limited small stones (limited) wetness (moderately limited)	1.00  0.34
70080:								
Noark-----	Very limited small stones (very limited) slope (slightly limited)	1.00  0.04	Very limited small stones (very limited) slope (slightly limited)	1.00  0.04	Very limited small stones (very limited) slope (very limited)	1.00  1.00	Limited small stones (limited)	0.87
Clarksville-----	Limited small stones (limited) slope (slightly limited)	0.73  0.04	Limited small stones (limited) slope (slightly limited)	0.73  0.04	Very limited small stones (very limited) slope (very limited) large stones (moderately limited)	1.00  1.00  0.60	Not limited	
Crackerneck, karst	Very limited small stones (very limited) wetness (limited) percs slowly (slightly limited)	1.00  0.96  0.26	Very limited small stones (very limited) wetness (limited) percs slowly (slightly limited)	1.00  0.60  0.26	Very limited small stones (very limited) slope (limited) wetness (limited)	1.00  0.98  0.96	Limited small stones (limited) wetness (limited)	0.73  0.60
70081:								
Rueter-----	Very limited slope (very limited) small stones (very limited)	1.00  1.00	Very limited slope (very limited) small stones (very limited)	1.00  1.00	Very limited small stones (very limited) slope (very limited)	1.00  1.00	Very limited small stones (very limited) slope (limited)	1.00  0.92

Table 10.--Recreational Site Development--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
70081:								
Goss-----	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	small stones (limited)	0.71
					large stones (limited)	0.80		
Jollymill-----	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	small stones (limited)	0.87
	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13		
70082:								
Paintbrush-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited small stones (limited)	0.80
	wetness (limited)	0.65	percs slowly (moderately limited)	0.39	wetness (limited)	0.65	wetness (moderately limited)	0.39
	percs slowly (moderately limited)	0.39	wetness (moderately limited)	0.39	percs slowly (moderately limited)	0.39		
Friendly-----	Very limited wetness (very limited)	1.00	Limited wetness (limited)	0.86	Very limited wetness (very limited)	1.00	Limited wetness (limited)	0.86
	percs slowly (moderately limited)	0.39	percs slowly (moderately limited)	0.39	percs slowly (moderately limited)	0.39		
70083:								
Eldorado-----	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 small stones (slightly limited)	0.30
					slope (limited)	0.78		

Table 10.--Recreational Site Development--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
70150:								
Moko-----	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited slope (very limited)	1.00
	small stones (very limited)	1.00	small stones (very limited)	1.00	slope (very limited)	1.00	small stones (moderately limited)	0.36
	shallow to bedrock (limited)	0.90	shallow to bedrock (limited)	0.90	shallow to bedrock (very limited)	1.00		
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
71253:								
Hartville-----	Very limited wetness (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (limited)	1.00
	small stones (very limited)	1.00	wetness (limited)	0.86	wetness (very limited)	1.00	wetness (limited)	0.86
	percs slowly (moderately limited)	0.39	percs slowly (moderately limited)	0.39	percs slowly (moderately limited)	0.39		
71255:								
Britwater-----	Moderately limited small stones (moderately limited)	0.33	Moderately limited small stones (moderately limited)	0.33	Very limited small stones (very limited)	1.00	Not limited	
					slope (moderately limited)	0.40		
71256:								
Townhole-----	Moderately limited percs slowly (moderately limited)	0.57	Moderately limited percs slowly (moderately limited)	0.57	Very limited small stones (limited)	1.00	Not limited	
	small stones (slightly limited)	0.06	small stones (slightly limited)	0.06	slope (limited)	0.98		
					percs slowly (moderately limited)	0.57		
Aslinger-----	Limited wetness (limited)	0.90	Moderately limited wetness (moderately limited)	0.56	Limited slope (limited)	0.98	Moderately limited wetness (moderately limited)	0.56
	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	wetness (limited)	0.90		
					percs slowly (slightly limited)	0.13		

Table 10.--Recreational Site Development--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
71257: Townhole, karst---	Limited wetness (limited) percs slowly (moderately limited)	0.65 0.57	Moderately limited percs slowly (moderately limited) wetness (moderately limited)	0.57 0.39	Limited wetness (limited) percs slowly (moderately limited) small stones (slightly limited)	0.65 0.57 0.00	Moderately limited wetness (moderately limited)	0.39
Aslinger, karst---	Slightly limited percs slowly (slightly limited)	0.13	Slightly limited percs slowly (slightly limited)	0.13	Moderately limited small stones (moderately limited) percs slowly (slightly limited)	0.30 0.13	Not limited	
71258: Maplegrove-----	Slightly limited percs slowly (slightly limited)	0.13	Slightly limited percs slowly (slightly limited)	0.13	Slightly limited percs slowly (slightly limited)	0.13	Not limited	
Carl-----	Very limited wetness (very limited) percs slowly (very limited) flooding (rare) (limited)	1.00 1.00 0.90	Very limited wetness (very limited) percs slowly (very limited) too clayey (moderately limited)	1.00 1.00 0.60	Very limited wetness (very limited) percs slowly (very limited) too clayey (moderately limited)	1.00 1.00 0.60	Very limited wetness (very limited) too clayey (moderately limited)	1.00 0.60
71752: Bearthicket-----	Very limited flooding (very limited)	1.00	Not limited		Moderately limited flooding (moderately limited)	0.60	Not limited	
71753: Cedargap-----	Very limited flooding (very limited) small stones (very limited) too clayey (moderately limited)	1.00 1.00 0.24	Very limited small stones (very limited) flooding (moderately limited) too clayey (moderately limited)	1.00 0.60 0.24	Very limited flooding (very limited) small stones (very limited) too clayey (moderately limited)	1.00 1.00 0.24	Very limited small stones (very limited) flooding (moderately limited) too clayey (moderately limited)	1.00 0.60 0.24

Table 10.--Recreational Site Development--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
71753: Pinerun-----	Very limited flooding (very limited)	1.00	Not limited		Moderately limited flooding (moderately limited) small stones (slightly limited)	0.60 0.00	Not limited	
71754: Waben-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited) slope (moderately limited)	1.00 0.40	Very limited small stones (very limited)	1.00
Cedargap-----	Very limited flooding (very limited) small stones (very limited) too clayey (moderately limited)	1.00 1.00 0.60	Very limited small stones (very limited) too clayey (moderately limited)	1.00 0.60	Very limited small stones (very limited) flooding (moderately limited) too clayey (moderately limited)	1.00 0.60 0.60	Very limited small stones (very limited) too clayey (moderately limited)	1.00 0.60
71755: Cedargap-----	Very limited flooding (very limited) small stones (very limited)	1.00 1.00	Very limited small stones (very limited) flooding (moderately limited)	1.00 0.60	Very limited flooding (very limited) small stones (very limited)	1.00 1.00	Very limited small stones (very limited) flooding (moderately limited)	1.00 0.60
Gladden-----	Very limited flooding (very limited)	1.00	Not limited		Moderately limited flooding (moderately limited)	0.60	Not limited	
73116: Pomme-----	Not limited		Not limited		Moderately limited slope (moderately limited) small stones (slightly limited)	0.40 0.00	Not limited	

Table 10.--Recreational Site Development--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
73120:								
Rueter-----	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited slope (very limited)	1.00
	small stones (very limited)	1.00	small stones (very limited)	1.00	slope (very limited)	1.00	small stones (very limited)	1.00
Gasconade-----	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
	shallow to bedrock (limited)	0.90	shallow to bedrock (limited)	0.90	shallow to bedrock (very limited)	1.00	too clayey (moderately limited)	0.60
	too clayey (moderately limited)	0.60	too clayey (moderately limited)	0.60	small stones (very limited)	1.00		
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73349:								
Boskydell-----	Very limited wetness (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited small stones (limited)	0.73
	small stones (very limited)	1.00	slope (very limited)	1.00	wetness (very limited)	1.00	wetness (limited)	0.73
	slope (very limited)	1.00	wetness (limited)	0.73	slope (very limited)	1.00	too clayey (moderately limited)	0.60
73350:								
Clinkenbeard-----	Moderately limited large stones (moderately limited)	0.56	Moderately limited large stones (moderately limited)	0.56	Very limited large stones >25% (very limited)	1.00	Moderately limited large stones (moderately limited)	0.56
	small stones (slightly limited)	0.28	small stones (slightly limited)	0.28	small stones (very limited)	1.00		
	percs slowly (slightly limited)	0.17	percs slowly (slightly limited)	0.17	slope (limited)	0.98		
Gobbler-----	Limited small stones (limited)	0.72	Limited small stones (limited)	0.72	Very limited small stones (very limited)	1.00	Moderately limited large stones (moderately limited)	0.30
	large stones (moderately limited)	0.30	large stones (moderately limited)	0.30	large stones >25% (very limited)	1.00		
					slope (limited)	0.98		

Table 10.--Recreational Site Development--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
73351: Sonsac-----	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00
	small stones (very limited)	1.00	small stones (very limited)	1.00	slope (very limited)	1.00	slope (limited)	0.92
					depth to bedrock (moderately limited)	0.42		
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	small stones (moderately limited)	0.48
					large stones (slightly limited)	0.01		
73352: Jollymill-----	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 small stones (slightly limited)	0.30
	wetness (moderately limited)	0.35	wetness (slightly limited)	0.13	slope (very limited)	1.00	wetness (slightly limited)	0.13
	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	wetness (moderately limited)	0.35		
Bendavis-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00
	wetness (moderately limited)	0.59	wetness (moderately limited)	0.34	slope (very limited)	1.00	wetness (moderately limited)	0.34
	too acid (slightly limited)	0.06	too acid (slightly limited)	0.06	wetness (moderately limited)	0.59		
73353: Hailey-----	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited slope (very limited)	1.00
	small stones (very limited)	1.00	small stones (very limited)	1.00	slope (very limited)	1.00	small stones (limited)	0.76
					large stones (moderately limited)	0.42		

Table 10.--Recreational Site Development--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
73353: Sonsac-----	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited large stones >25% (very limited)	1.00	Very limited slope (very limited)	1.00
	large stones (limited)	0.79	large stones (limited)	0.79	slope (very limited)	1.00	large stones (limited)	0.79
	small stones (slightly limited)	0.04	small stones (slightly limited)	0.04	small stones (limited)	0.98	large surface stones (slightly limited)	0.03
73355: Moko-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Moderately limited too clayey (moderately limited)	0.60
	shallow to bedrock (limited)	0.90	shallow to bedrock (limited)	0.90	slope (very limited)	1.00	small stones (moderately limited)	0.31
	too clayey (moderately limited)	0.60	too clayey (moderately limited)	0.60	shallow to bedrock (very limited)	1.00		
Blueye-----	Moderately limited percs slowly (moderately limited)	0.39	Moderately limited percs slowly (moderately limited)	0.39	Very limited slope (very limited)	1.00	Slightly limited large surface stones (slightly limited)	0.03
	small stones (slightly limited)	0.30	small stones (slightly limited)	0.30	small stones (very limited)	1.00		
	slope (slightly limited)	0.04	slope (slightly limited)	0.04	depth to bedrock (moderately limited)	0.58		
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73356: Moko-----	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited large surface stones (very limited)	1.00
	large surface stones (very limited)	1.00	large surface stones (very limited)	1.00	shallow to bedrock (very limited)	1.00	slope (very limited)	1.00
	shallow to bedrock (limited)	0.90	shallow to bedrock (limited)	0.90	small stones (very limited)	1.00		
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	

Table 10.--Recreational Site Development--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
73357:								
Moko-----	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
	shallow to bedrock (limited)	0.90	shallow to bedrock (limited)	0.90	shallow to bedrock (very limited)	1.00	large stones (limited)	0.60
	large stones (limited)	0.60	large stones (limited)	0.60	large stones >25% (very limited)	1.00		
Boskydell-----	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited wetness (very limited)	1.00	Very limited slope (very limited)	1.00
	wetness (very limited)	1.00	wetness (limited)	0.94	slope (very limited)	1.00	wetness (limited)	0.94
	too clayey (moderately limited)	0.60	too clayey (moderately limited)	0.60	large stones >25% (very limited)	1.00	too clayey (moderately limited)	0.60
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73358:								
Eldorado-----	Moderately limited small stones (moderately limited)	0.36	Moderately limited small stones (moderately limited)	0.36	Very limited small stones (very limited)	1.00	Not limited	
					slope (limited)	0.78		
Moko-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Moderately limited small stones (moderately limited)	0.60
	shallow to bedrock (limited)	0.90	shallow to bedrock (limited)	0.90	shallow to bedrock (very limited)	1.00		
					slope (limited)	0.78		
73359:								
Bona-----	Limited small stones (limited)	0.98	Limited small stones (limited)	0.98	Very limited small stones (very limited)	1.00	Moderately limited large stones (moderately limited)	0.30
	slope (limited)	0.63	slope (limited)	0.63	slope (very limited)	1.00		
	large stones (moderately limited)	0.30	large stones (moderately limited)	0.30	large stones >25% (very limited)	1.00		

Table 10.--Recreational Site Development--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
73359:								
Moko-----	Very limited small stones (very limited) shallow to bedrock (limited) slope (limited)	1.00  0.90  0.63	Very limited small stones (very limited) shallow to bedrock (limited) slope (limited)	1.00  0.90  0.63	Very limited small stones (very limited) slope (very limited) shallow to bedrock (very limited)	1.00  1.00  1.00	Moderately limited small stones (moderately limited)	0.60
74640:								
Hootentown-----	Limited flooding (rare) (limited)	0.90	Not limited		Not limited		Not limited	
99000:								
Pits, quarries----	Not rated		Not rated		Not rated		Not rated	
99001:								
Water-----	Not rated		Not rated		Not rated		Not rated	
99003:								
Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated	
99007:								
Dam-----	Not rated		Not rated		Not rated		Not rated	
99016:								
Water-----	Not rated		Not rated		Not rated		Not rated	
Riverwash-----	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
70067: Pembroke, karst-----	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Limited seasonally ponded (limited)	0.80	Limited seasonally ponded (limited)	0.80	Limited seasonally ponded (limited)	0.80
70068: Bendavis, karst-----	Very limited droughty (very limited)	1.00	Limited droughty (limited)	0.94	Limited droughty (limited)	0.94	Limited droughty (limited)	0.94	Limited droughty (limited)	0.94
	moderate erodibility (moderately limited)	0.50	moderate erodibility (moderately limited)	0.50			depth to bedrock (slightly limited)	0.27	depth to bedrock (slightly limited)	0.27
	depth to bedrock (slightly limited)	0.27	depth to bedrock (slightly limited)	0.27						
Jollymill, karst-----	Very limited droughty (very limited)	1.00	Moderately limited droughty (moderately limited)	0.54	Moderately limited droughty (moderately limited)	0.54	Moderately limited droughty (moderately limited)	0.54	Moderately limited droughty (moderately limited)	0.54
	moderate erodibility (moderately limited)	0.50	moderate erodibility (moderately limited)	0.50	wetness (slightly limited)	0.28	wetness (slightly limited)	0.28	wetness (moderately limited)	0.45
	wetness (slightly limited)	0.28	wetness (slightly limited)	0.28						
Crackerneck, karst-----	Very limited droughty (very limited)	1.00	Limited droughty (limited)	0.66	Limited droughty (limited)	0.66	Limited droughty (limited)	0.66	Limited droughty (limited)	0.66
	moderate erodibility (moderately limited)	0.50	moderate erodibility (moderately limited)	0.50	wetness (slightly limited)	0.19	wetness (slightly limited)	0.19	wetness (moderately limited)	0.40
	small stones (moderately limited)	0.33	small stones (moderately limited)	0.33	small stones (slightly limited)	0.04	small stones (slightly limited)			

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
70069: Jollymill, karst-----	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) droughty (limited) moderate erodibility (moderately limited)	1.00  0.83  0.50	Limited small stones (limited) droughty (limited) wetness (slightly limited)	0.99  0.83  0.28	Limited small stones (limited) droughty (limited) wetness (slightly limited)	1.00  0.83  0.28	Limited droughty (limited) wetness (moderately limited)	0.83  0.45
Crackerneck, karst-----	Limited droughty (limited) moderate erodibility (moderately limited) small stones (moderately limited)	0.94  0.50  0.33	Moderately limited moderate erodibility (moderately limited) small stones (moderately limited) percs slowly (slightly limited)	0.50  0.33  0.26	Slightly limited wetness (slightly limited) small stones (slightly limited)	0.19  0.04	Slightly limited wetness (slightly limited)	0.19	Moderately limited wetness (moderately limited)	0.40
70070: Crackerneck, karst-----	Very limited droughty (very limited) small stones (very limited) high erodibility (limited)	1.00  1.00  0.80	Very limited small stones (very limited) droughty (limited) high erodibility (limited)	1.00  0.80  0.80	Limited small stones (limited) droughty (limited) wetness (moderately limited)	0.86  0.80  0.48	Limited small stones (limited) droughty (limited) wetness (moderately limited)	0.87  0.80  0.48	Limited droughty (limited) wetness (limited)	0.80  0.66
Hailey, karst	Very limited small stones (very limited) droughty (very limited) high erodibility (limited)	1.00  1.00  0.80	Very limited small stones (very limited) droughty (very limited) high erodibility (limited)	1.00  1.00  0.80	Very limited droughty (very limited) small stones (limited)	1.00  0.77	Very limited droughty (very limited) small stones (limited)	1.00  0.77	Very limited droughty (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
70071:										
Sowcoon-----	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Limited seasonally ponded (limited)	0.80	Limited seasonally ponded (limited)	0.80	Very limited wetness (very limited)	1.00
	small stones (limited)	1.00	small stones (limited)	1.00	wetness (limited)	0.68	wetness (limited)	0.68	seasonally ponded (limited)	0.80
	wetness (limited)	0.68	wetness (limited)	0.68	small stones (slightly limited)	0.24	small stones (slightly limited)	0.01		
Viburnum-----	Moderately limited wetness (moderately limited)	0.44	Moderately limited wetness (moderately limited)	0.44	Moderately limited wetness (moderately limited)	0.44	Moderately limited wetness (moderately limited)	0.44	Moderately limited wetness (moderately limited)	0.59
	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13						
70072:										
Rueter-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Moderately limited small stones (moderately limited)	0.42	Moderately limited droughty (moderately limited)	0.34	Moderately limited droughty (moderately limited)	0.34
	droughty (very limited)	1.00	moderate erodibility (moderately limited)	0.50	droughty (moderately limited)	0.34	small stones (slightly limited)	0.30		
	moderate erodibility (moderately limited)	0.50	droughty (moderately limited)	0.34						
Pomme-----	Moderately limited moderate erodibility (moderately limited)	0.50	Moderately limited moderate erodibility (moderately limited)	0.50	Not limited		Not limited		Not limited	
70073:										
Beemont-----	Limited droughty (limited)	0.98	Limited high erodibility (limited)	0.80	Slightly limited large stones (slightly limited)	0.03	Slightly limited large stones (slightly limited)	0.03	Slightly limited large stones (slightly limited)	0.03
	high erodibility (limited)	0.80	percs slowly (moderately limited)	0.48						
	percs slowly (moderately limited)	0.48	large stones (moderately 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
70074: Townhole-----	Limited droughty (limited) moderate erodibility (moderately limited) wetness (moderately limited)	0.62 0.50 0.34	Moderately limited moderate erodibility (moderately limited) wetness (moderately limited) percs slowly (slightly limited)	0.50 0.34 0.26	Moderately limited wetness (moderately limited)	0.34	Moderately limited wetness (moderately limited)	0.34	Moderately limited wetness (moderately limited)	0.49
70075: Waben-----	Very limited small stones (very limited) droughty (limited) moderate erodibility (moderately limited)	1.00 0.87 0.50	Very limited small stones (very limited) moderate erodibility (moderately limited)	1.00 0.50	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Not limited	
70076: Clarksville---	Very limited droughty (very limited) large stones (limited) high erodibility (limited)	1.00 0.86 0.80	Limited large stones (limited) high erodibility (limited) droughty (slightly limited)	0.86 0.80 0.28	Moderately limited large stones (moderately limited) droughty (slightly limited)	0.50 0.28	Moderately limited large stones (moderately limited) droughty (slightly limited)	0.50 0.28	Moderately limited large stones (moderately limited) droughty (slightly limited)	0.50 0.28
Noark-----	Very limited droughty (very limited) small stones (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited small stones (very limited) droughty (limited) high erodibility (limited)	1.00 0.96 0.80	Limited droughty (limited) small stones (limited)	0.96 0.73	Limited droughty (limited) small stones (limited)	0.96 0.73	Limited droughty (limited)	0.96
70077: Flagspring----	Limited droughty (very limited) high erodibility (limited) percs slowly (slightly limited)	1.00 0.80 0.13	Limited high erodibility (limited) percs slowly (slightly limited)	0.80 0.13	Not limited		Not limited		Not limited	

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
70078:										
Goss-----	Very limited small stones (very limited) droughty (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited small stones (very limited) droughty (limited) high erodibility (limited)	1.00 0.81 0.80	Limited small stones (limited) droughty (limited)	0.99 0.81	Limited small stones (limited) droughty (limited)	1.00 0.81	Limited droughty (limited)	0.81
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) droughty (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited droughty (very limited) small stones (limited)	1.00 0.99	Very limited droughty (very limited) small stones (limited)	1.00 1.00	Very limited droughty (very limited)	1.00
70079:										
Viburnum-----	Moderately limited wetness (moderately limited) moderate erodibility (moderately limited) percs slowly (slightly limited)	0.53 0.50 0.13	Moderately limited wetness (moderately limited) moderate erodibility (moderately limited) percs slowly (slightly limited)	0.53 0.50 0.13	Moderately limited wetness (moderately limited)	0.53	Moderately limited wetness (moderately limited)	0.53	Limited wetness (limited)	0.79
Crackerneck---	Very limited droughty (very limited) small stones (very limited) moderate erodibility (moderately limited)	1.00 1.00 0.50	Very limited small stones (very limited) droughty (limited) moderate erodibility (moderately limited)	1.00 0.60 0.50	Limited small stones (limited) droughty (limited) wetness (moderately limited)	0.99 0.60 0.48	Limited small stones (limited) droughty (limited) wetness (moderately limited)	1.00 0.60 0.48	Limited wetness (limited) droughty (limited)	0.66 0.60
70080:										
Noark-----	Very limited droughty (very limited) small stones (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited small stones (very limited) droughty (limited) high erodibility (limited)	1.00 0.95 0.80	Limited droughty (limited) small stones (limited)	0.95 0.86	Limited droughty (limited) small stones (limited)	0.95 0.87	Limited droughty (limited)	0.95

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
70080:										
Clarksville---	Very limited droughty (very limited)	1.00	Limited high erodibility (limited)	0.80	Moderately limited droughty (moderately limited)	0.39	Moderately limited droughty (moderately limited)	0.39	Moderately limited droughty (moderately limited)	0.39
	high erodibility (limited)	0.80	small stones (limited)	0.73	small stones (slightly limited)	0.15				
	small stones (limited)	0.73	droughty (moderately limited)	0.39						
Crackerneck, karst-----	Very limited droughty (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited small stones (limited)	0.73	Limited small stones (limited)	0.73	Limited wetness (limited)	0.99
	small stones (very limited)	1.00	high erodibility (limited)	0.80	wetness (moderately limited)	0.60	wetness (moderately limited)	0.60	droughty (slightly limited)	0.17
	high erodibility (limited)	0.80	wetness (moderately limited)	0.60	droughty (slightly limited)	0.17	droughty (slightly limited)	0.17		
70081:										
Rueter-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited droughty (very limited)	0.99
	droughty (very limited)	1.00	droughty (very limited)	0.99	droughty (very limited)	0.99	droughty (very limited)	0.99		
	high erodibility (limited)	0.80	high erodibility (limited)	0.80						
Goss-----	Very limited droughty (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited small stones (limited)	0.70	Limited small stones (limited)	0.71	Moderately limited droughty (moderately limited)	0.44
	small stones (very limited)	1.00	high erodibility (limited)	0.80	droughty (moderately limited)	0.44	droughty (moderately limited)	0.44		
	high erodibility (limited)	0.80	slope (moderately limited)	0.60						
Jollymill----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited small stones (limited)	0.86	Limited small stones (limited)	0.87	Moderately limited wetness (moderately limited)	0.40
	droughty (very limited)	1.00	high erodibility (limited)	0.80	wetness (slightly limited)	0.19	wetness (slightly limited)	0.19	droughty (slightly limited)	0.00
	high erodibility (limited)	0.80	slope (moderately limited)	0.60	droughty (slightly limited)	0.00	droughty (slightly limited)	0.00		

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
70082: Paintbrush----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited small stones (limited)	0.80	Limited small stones (limited)	0.80	Limited wetness (limited)	0.71
	moderate erodibility (moderately limited)	0.50	moderate erodibility (moderately limited)	0.50	wetness (moderately limited)	0.50	wetness (moderately limited)	0.50		
	wetness (moderately limited)	0.50	wetness (moderately limited)	0.50						
Friendly-----	Limited wetness (limited)	0.86	Limited wetness (limited)	0.86	Limited wetness (limited)	0.86	Limited wetness (limited)	0.86	Very limited wetness (very limited)	1.00
	moderate erodibility (moderately limited)	0.50	moderate erodibility (moderately limited)	0.50						
	percs slowly (moderately limited)	0.39	percs slowly (moderately limited)	0.39						
70083: Eldorado-----	Very limited droughty (very limited)	1.00	Very limited small stones (very limited)	1.00	Moderately limited small stones (moderately limited)	0.42	Slightly limited small stones (slightly limited)	0.30	Slightly limited droughty (slightly limited)	0.02
	small stones (very limited)	1.00	high erodibility (limited)	0.80	droughty (slightly limited)	0.02	droughty (slightly limited)	0.02		
	high erodibility (limited)	0.80	droughty (slightly limited)	0.02						
70150: Moko-----	Very limited droughty (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00
	slope (very limited)	1.00	shallow to bedrock (very limited)	1.00	small stones (moderately limited)	0.45	droughty (very limited)	1.00	droughty (very limited)	1.00
	shallow to bedrock (very limited)	1.00	droughty (very limited)	1.00			small stones (moderately limited)	0.36		
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
71253: Hartville-----	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited small stones (limited)	0.99	Limited small stones (limited)	1.00	Very limited wetness (very limited)	1.00
	droughty (limited)	0.93	wetness (limited)	0.86	wetness (limited)	0.86	wetness (limited)	0.86		
	wetness (limited)	0.86	percs slowly (moderately limited)	0.39						

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
71255: Britwater-----	Limited high erodibility (limited) small stones (moderately limited)	0.80  0.33	Limited high erodibility (limited) small stones (moderately limited)	0.80  0.33	Slightly limited small stones (slightly limited)	0.04	Not limited		Not limited	
71256: Townhole-----	Moderately limited percs slowly (moderately limited) moderate erodibility (moderately limited) small stones (slightly limited)	0.57  0.50  0.06	Moderately limited percs slowly (moderately limited) moderate erodibility (moderately limited) small stones (slightly limited)	0.57  0.50  0.06	Slightly limited wetness (slightly limited) small stones (slightly limited)	0.04  0.00	Slightly limited wetness (slightly limited)	0.04	Moderately limited wetness (moderately limited)	0.32
Aslinger-----	Moderately limited wetness (moderately limited) moderate erodibility (moderately limited) percs slowly (slightly limited)	0.58  0.50  0.13	Moderately limited wetness (moderately limited) moderate erodibility (moderately limited) percs slowly (slightly limited)	0.58  0.50  0.13	Moderately limited wetness (moderately limited)	0.58	Moderately limited wetness (moderately limited)	0.58	Limited wetness (limited)	0.93
71257: Townhole, karst-----	Moderately limited percs slowly (moderately limited) moderate erodibility (moderately limited) wetness (moderately limited)	0.57  0.50  0.50	Moderately limited percs slowly (moderately limited) moderate erodibility (moderately limited) wetness (moderately limited)	0.57  0.50  0.50	Moderately limited wetness (moderately limited)	0.50	Moderately limited wetness (moderately limited)	0.50	Limited wetness (limited)	0.71
Aslinger, karst-----	Moderately limited moderate erodibility (moderately limited) wetness (slightly limited) percs slowly (slightly limited)	0.50  0.28  0.13	Moderately limited moderate erodibility (moderately limited) wetness (slightly limited) percs slowly (slightly limited)	0.50  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

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
71258: Maplegrove----	Moderately limited moderate erodibility (moderately limited) wetness (slightly limited) percs slowly (slightly limited)	0.50 0.28 0.13	Moderately limited moderate erodibility (moderately limited) wetness (slightly limited) percs slowly (slightly limited)	0.50 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
Carl-----	Very limited wetness (very limited) percs slowly (very limited) moderate erodibility (moderately limited)	1.00 1.00 0.50	Very limited wetness (very limited) percs slowly (very limited) moderate erodibility (moderately limited)	1.00 1.00 0.50	Very limited wetness (very limited) too clayey (slightly limited)	1.00 0.16	Very limited wetness (very limited) too clayey (slightly limited)	1.00 0.16	Very limited wetness (very limited)	1.00
71752: Bearthicket---	Moderately limited flooding (moderately limited)	0.60	Moderately limited flooding (moderately limited)	0.60	Not limited		Not limited		Not limited	
71753: Cedargap-----	Very limited droughty (very limited) small stones (very limited) flooding (limited)	1.00 1.00 0.90	Very limited small stones (very limited) droughty (very limited) flooding (limited)	1.00 1.00 0.90	Very limited small stones (very limited) droughty (very limited) too clayey (slightly limited)	1.00 1.00 0.01	Very limited small stones (very limited) droughty (very limited) too clayey (slightly limited)	1.00 1.00 0.01	Very limited droughty (very limited)	1.00
Pinerun-----	Very limited droughty (very limited) flooding (moderately limited)	1.00 0.60	Moderately limited flooding (moderately limited) droughty (slightly limited)	0.60 0.01	Slightly limited droughty (slightly limited)	0.01	Slightly limited droughty (slightly limited)	0.01	Slightly limited droughty (slightly limited)	0.01
71754: Waben-----	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) droughty (limited) moderate erodibility (moderately limited)	1.00 0.92 0.50	Very limited small stones (very limited) droughty (limited)	1.00 0.92	Very limited small stones (very limited) droughty (limited)	1.00 0.92	Limited droughty (limited)	0.92

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						
71754: Cedargap-----	Very limited droughty (very limited) small stones (very limited) flooding (moderately limited)	1.00 1.00 0.60	Very limited small stones (very limited) droughty (very limited) flooding (moderately limited)	1.00 1.00 0.60	Very limited small stones (very limited) droughty (very limited) too clayey (slightly limited)	1.00 1.00 0.04	Very limited small stones (very limited) droughty (very limited) too clayey (slightly limited)	1.00 1.00 0.04	Very limited droughty (very limited)	1.00
71755: Cedargap-----	Very limited droughty (very limited) small stones (very limited) flooding (limited)	1.00 1.00 0.90	Very limited small stones (very limited) droughty (very limited) flooding (limited)	1.00 1.00 0.90	Very limited small stones (very limited) droughty (very limited)	1.00 1.00	Very limited droughty (very limited) small stones (very limited)	1.00 1.00	Very limited droughty (very limited)	1.00
Gladden-----	Moderately limited flooding (moderately limited)	0.60	Moderately limited flooding (moderately limited)	0.60	Not limited		Not limited		Not limited	
73116: Pomme-----	Moderately limited moderate erodibility (moderately limited) droughty (moderately limited)	0.50 0.45	Moderately limited moderate erodibility (moderately limited)	0.50	Not limited		Not limited		Not limited	
73120: Rueter-----	Very limited slope (very limited) small stones (very limited) droughty (limited)	1.00 1.00 0.96	Very limited slope (very limited) small stones (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited small stones (very limited)	1.00	Very limited small stones (very limited)	1.00	Not limited	

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
73120:										
Gasconade-----	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00
	shallow to bedrock (very limited)	1.00	shallow to bedrock (very limited)	1.00	too clayey (slightly limited)	0.27	shallow to bedrock (very limited)	1.00	droughty (very limited)	1.00
	slope (very limited)	1.00	slope (very limited)	1.00	small stones (slightly limited)	0.04	too clayey (slightly limited)	0.27		
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73349:										
Boskydell-----	Very limited droughty (very limited)	1.00	Very limited small stones (very limited)	1.00	Limited droughty (limited)	0.74	Limited droughty (limited)	0.74	Very limited wetness (very limited)	1.00
	small stones (very limited)	1.00	high erodibility (limited)	0.80	small stones (limited)	0.73	small stones (limited)	0.73	droughty (limited)	0.74
	high erodibility (limited)	0.80	droughty (limited)	0.74	wetness (limited)	0.73	wetness (limited)	0.73		
73350:										
Clinkenbeard--	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00
	large stones (limited)	0.94	large stones (limited)	0.94	large stones (moderately limited)	0.56	large stones (moderately limited)	0.56	large stones (moderately limited)	0.56
	high erodibility (limited)	0.80	high erodibility (limited)	0.80	small stones (slightly limited)	0.03	depth to bedrock (slightly limited)	0.21	depth to bedrock (slightly limited)	0.21
Gobbler-----	Very limited droughty (very limited)	1.00	Limited high erodibility (limited)	0.80	Moderately limited droughty (moderately limited)	0.49	Moderately limited droughty (moderately limited)	0.49	Moderately limited droughty (moderately limited)	0.49
	high erodibility (limited)	0.80	small stones (limited)	0.72	large stones (moderately limited)	0.30	large stones (moderately limited)	0.30	large stones (moderately limited)	0.30
	small stones (limited)	0.72	large stones (moderately limited)	0.60	small stones (slightly limited)	0.14				

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
73351: Sonsac-----	Very limited droughty (very limited) small stones (very limited) high erodibility (limited)	1.00  1.00  0.80	Very limited small stones (very limited) droughty (very limited) high erodibility (limited)	1.00  1.00  0.80	Very limited droughty (very limited) small stones (very limited)	1.00  1.00  	Very limited droughty (very limited) small stones (very limited) depth to bedrock (moderately limited)	1.00  1.00  0.42	Very limited droughty (very limited) depth to bedrock (moderately limited)	1.00    
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) droughty (limited) high erodibility (limited)	1.00  0.98  0.80	Limited droughty (limited) small stones (moderately limited)	0.98  0.53  	Limited droughty (limited) small stones (moderately limited)	0.98  0.48  	Limited droughty (limited)	0.98  
73352: Jollymill----	Very limited small stones (very limited) droughty (very limited) high erodibility (limited)	1.00  1.00  0.80	Very limited small stones (very limited) high erodibility (limited) wetness (moderately limited)	1.00  0.80  0.36	Moderately limited small stones (moderately limited) wetness (moderately limited) droughty (slightly limited)	0.42  0.36  0.00	Moderately limited wetness (moderately limited) small stones (slightly limited) droughty (slightly limited)	0.36  0.30  0.00	Moderately limited wetness (moderately limited) droughty (slightly limited)	0.51  0.00  
Bendavis-----	Very limited small stones (very limited) droughty (very limited) high erodibility (limited)	1.00  1.00  0.80	Very limited small stones (very limited) droughty (very limited) high erodibility (limited)	1.00  1.00  0.80	Very limited small stones (very limited) droughty (very limited) wetness (moderately limited)	1.00  1.00  0.48	Very limited droughty (very limited) small stones (very limited) wetness (moderately limited)	1.00  1.00  0.48	Very limited droughty (very limited) wetness (limited) depth to bedrock (slightly limited)	1.00  0.66  0.21
73353: Hailey-----	Very limited droughty (very limited) slope (very limited) small stones (very limited)	1.00  1.00  1.00	Very limited slope (very limited) small stones (very limited) high erodibility (limited)	1.00  1.00  0.80	Limited small stones (limited) droughty (slightly limited)	0.76  0.20  	Limited small stones (limited) droughty (slightly limited)	0.76  0.20  	Slightly limited droughty (slightly limited)	0.20  

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
73353: Sonsac-----	Very limited droughty (very limited) slope (very limited) large stones >35% (very limited)	1.00 1.00 1.00	Very limited slope (very limited) droughty (very limited) large stones >35% (very limited)	1.00 1.00 1.00	Very limited droughty (very limited) large stones (limited)	1.00 0.79	Very limited droughty (very limited) large stones (limited) depth to bedrock (moderately limited)	1.00 0.79 0.53	Very limited droughty (very limited) large stones (limited) depth to bedrock (moderately limited)	1.00 0.79 0.53
73355: Moko-----	Very limited droughty (very limited) shallow to bedrock (very limited) small stones (very limited)	1.00 1.00 1.00	Very limited droughty (very limited) shallow to bedrock (very limited) small stones (very limited)	1.00 1.00 1.00	Very limited droughty (very limited) small stones (moderately limited) too clayey (slightly limited)	1.00 0.43 0.06	Very limited droughty (very limited) shallow to bedrock (very limited) small stones (moderately limited)	1.00 1.00 0.31	Very limited shallow to bedrock (very limited) droughty (very limited)	1.00 1.00
Blueye-----	Very limited droughty (very limited) high erodibility (limited) depth to bedrock (moderately limited)	1.00 0.80 0.58	Limited high erodibility (limited) depth to bedrock (moderately limited) percs slowly (moderately limited)	0.80 0.58 0.39	Slightly limited droughty (slightly limited) small stones (slightly limited)	0.11 0.03	Moderately limited depth to bedrock (moderately limited) droughty (slightly limited)	0.58 0.11	Moderately limited depth to bedrock (moderately limited) droughty (slightly limited)	0.58 0.11
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73356: Moko-----	Very limited droughty (very limited) shallow to bedrock (very limited) slope (limited)	1.00 1.00 0.87	Very limited droughty (very limited) shallow to bedrock (very limited) slope (limited)	1.00 1.00 0.87	Very limited droughty (very limited) small stones (slightly limited)	1.00 0.11	Very limited droughty (very limited) shallow to bedrock (very limited)	1.00 1.00	Very limited shallow to bedrock (very limited) droughty (very limited)	1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	

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
73357:										
Moko-----	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00
	shallow to bedrock (very limited)	1.00	shallow to bedrock (very limited)	1.00	large stones (limited)	0.60	shallow to bedrock (very limited)	1.00	droughty (very limited)	1.00
	slope (very limited)	1.00	slope (very limited)	1.00			large stones (limited)	0.60	large stones (limited)	0.60
Boskydell----	Very limited droughty (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited wetness (very limited)	1.00
	slope (very limited)	1.00	droughty (very limited)	1.00	wetness (limited)	0.94	wetness (limited)	0.94	droughty (very limited)	1.00
	wetness (limited)	0.94	wetness (limited)	0.94	large stones (moderately limited)	0.40	depth to bedrock (limited)	0.66	depth to bedrock (limited)	0.66
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73358:										
Eldorado-----	Very limited droughty (very limited)	1.00	Moderately limited moderate erodibility (moderately limited)	0.50	Slightly limited small stones (slightly limited)	0.05	Slightly limited droughty (slightly limited)	0.00	Slightly limited droughty (slightly limited)	0.00
	moderate erodibility (moderately limited)	0.50	small stones (moderately limited)	0.36	droughty (slightly limited)	0.00				
	small stones (moderately limited)	0.36	droughty (slightly limited)	0.00						
Moko-----	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00
	shallow to bedrock (very limited)	1.00	shallow to bedrock (very limited)	1.00	small stones (moderately limited)	0.60	shallow to bedrock (very limited)	1.00	droughty (very limited)	1.00
	small stones (very limited)	1.00	small stones (very limited)	1.00			small stones (moderately limited)	0.60		
73359:										
Bona-----	Very limited droughty (very limited)	1.00	Limited small stones (limited)	0.98	Limited droughty (limited)	0.75	Limited droughty (limited)	0.75	Limited droughty (limited)	0.75
	small stones (limited)	0.98	droughty (limited)	0.75	large stones (moderately limited)	0.30	large stones (moderately limited)	0.30	large stones (moderately limited)	0.30
	large stones (moderately limited)	0.60	large stones (moderately limited)	0.60	small stones (slightly limited)	0.21				

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
73359:										
Moko-----	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00
	shallow to bedrock (very limited)	1.00	shallow to bedrock (very limited)	1.00	small stones (moderately limited)	0.60	shallow to bedrock (very limited)	1.00	droughty (very limited)	1.00
	small stones (very limited)	1.00	small stones (very limited)	1.00			small stones (moderately limited)	0.60		
74640:										
Hootentown----	Not limited		Not limited		Not limited		Not limited		Not limited	
99000:										
Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99007:										
Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99016:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Riverwash----	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
70067: Pembroke, karst-----	Limited seasonally ponded (limited)	0.80	Very limited deep to water (very limited) seasonally ponded (limited) infrequent flooding (limited)	1.00 0.80 0.80	Limited seasonally ponded (limited)	0.80	Very limited deep to water (very limited) seasonally ponded (limited)	1.00 0.80	Limited seasonally ponded (limited) seepage (moderately limited)	0.80 0.45
70068: Bendavis, karst-----	Limited droughty (limited) depth to bedrock (slightly limited)	0.94 0.27	Very limited deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Limited droughty (limited)	0.94	Very limited deep to water (very limited)	1.00	Moderately limited seepage (moderately limited)	0.54
Jollymill, karst-----	Moderately limited droughty (moderately limited) wetness (moderately limited)	0.54 0.45	Limited infrequent flooding (limited) deep to water (limited)	0.80 0.60	Moderately limited droughty (moderately limited)	0.54	Limited deep to water (limited) soil reaction (slightly limited)	0.60 0.06	Slightly limited seepage (slightly limited) soil reaction (slightly limited)	0.07 0.06
Crackerneck, karst-----	Limited droughty (limited) wetness (moderately limited)	0.66 0.40	Limited infrequent flooding (limited) deep to water (limited)	0.80 0.74	Limited droughty (limited)	0.66	Limited deep to water (limited)	0.74	Slightly limited seepage (slightly limited)	0.07
70069: Jollymill, karst-----	Limited droughty (limited) wetness (moderately limited)	0.83 0.45	Limited small stones (limited) infrequent flooding (limited) deep to water (limited)	1.00 0.80 0.60	Limited small stones (limited) droughty (limited)	1.00 0.83	Limited deep to water (limited)	0.60	Moderately limited slope (moderately limited) seepage (slightly limited)	0.31 0.18

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
70069: Crackerneck, karst-----	Moderately limited wetness (moderately limited)	0.40	Limited infrequent flooding (limited) deep to water (limited)	0.80 0.74	Not limited		Limited deep to water (limited)	0.74	Limited slope (limited) seepage (slightly limited)	0.66 0.07
70070: Crackerneck, karst-----	Limited droughty (limited) wetness (limited)	0.80 0.66	Limited small stones (limited) infrequent flooding (limited) deep to water (moderately limited)	0.87 0.80 0.42	Limited small stones (limited) droughty (limited)	0.87 0.80	Moderately limited deep to water (moderately limited)	0.42	Very limited slope (very limited) seepage (slightly limited)	1.00 0.07
Hailey, karst	Very limited droughty (very limited)	1.00	Very limited deep to water (very limited) infrequent flooding (limited) small stones (limited)	1.00 0.80 0.77	Very limited droughty (very limited) small stones (limited)	1.00 0.77	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (very limited)	1.00 1.00
70071: Sowcoon-----	Very limited wetness (very limited) seasonally ponded (limited)	1.00 0.80	Limited seasonally ponded (limited) infrequent flooding (limited) deep to water (slightly limited)	0.80 0.80 0.24	Limited seasonally ponded (limited) small stones (slightly limited)	0.80 0.01	Limited seasonally ponded (limited) deep to water (slightly limited)	0.80 0.24	Limited seasonally ponded (limited)	0.80
Viburnum-----	Moderately limited wetness (moderately limited)	0.59	Limited infrequent flooding (limited) deep to water (moderately limited)	0.80 0.45	Not limited		Moderately limited deep to water (moderately limited)	0.45	Slightly limited seepage (slightly limited)	0.18

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
70072: Rueter-----	Moderately limited droughty (moderately limited)	0.34	Very limited deep to water (very limited) infrequent flooding (limited) small stones (slightly limited)	1.00 0.80 0.30	Moderately limited droughty (moderately limited) small stones (slightly limited)	0.34 0.30	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (limited)	1.00 0.79
Pomme-----	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
70073: Beemont-----	Slightly limited large stones (slightly limited)	0.03	Very limited deep to water (very limited) infrequent flooding (limited) large stones (slightly limited)	1.00 0.80 0.03	Slightly limited large stones (slightly limited)	0.03	Very limited deep to water (very limited)	1.00	Very limited slope (very limited)	1.00
70074: Townhole-----	Moderately limited wetness (moderately limited)	0.49	Limited infrequent flooding (limited) deep to water (moderately limited)	0.80 0.55	Not limited		Moderately limited deep to water (moderately limited)	0.55	Slightly limited slope (slightly limited) seepage (slightly limited)	0.08 0.07
70075: Waben-----	Not limited		Very limited deep to water (very limited) small stones (very limited) infrequent flooding (limited)	1.00 1.00 0.80	Very limited small stones (very limited)	1.00	Very limited deep to water (very limited)	1.00	Limited slope (limited) seepage (limited)	0.91 0.79

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
70076: Clarksville---	Moderately limited large stones (moderately limited)	0.50	Very limited deep to water (very limited)	1.00	Moderately limited large stones (moderately limited)	0.50	Very limited deep to water (very limited)	1.00	Very limited slope (very limited)	1.00
	droughty (slightly limited)	0.28	infrequent flooding (limited)	0.80	droughty (slightly limited)	0.28			seepage (moderately limited)	0.45
			large stones (moderately limited)	0.50						
Noark-----	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 slope (very limited)	1.00
			infrequent flooding (limited)	0.80	small stones (limited)	0.73			seepage (moderately limited)	0.45
			small stones (limited)	0.73						
70077: Flagspring---	Not limited		Very limited deep to water (very limited)	1.00	Not limited		Very limited deep to water (very limited)	1.00	Very limited slope (very limited)	1.00
			infrequent flooding (limited)	0.80					seepage (slightly limited)	0.18
70078: Goss-----	Limited droughty (limited)	0.81	Very limited deep to water (very limited)	1.00	Limited small stones (limited)	1.00	Very limited deep to water (very limited)	1.00	Very limited slope (very limited)	1.00
			small stones (limited)	1.00	droughty (limited)	0.81			seepage (moderately limited)	0.45
			infrequent flooding (limited)	0.80						
Rueter-----	Very limited droughty (very limited)	1.00	Very limited deep to water (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited deep to water (very limited)	1.00	Very limited slope (very limited)	1.00
			small stones (limited)	1.00	small stones (limited)	1.00			seepage (moderately limited)	0.45
			infrequent flooding (limited)	0.80						

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
70079: Viburnum-----	Limited wetness (limited)	0.79	Limited infrequent flooding (limited) deep to water (moderately limited)	0.80 0.37	Not limited		Moderately limited deep to water (moderately limited)	0.37	Slightly limited seepage (slightly limited)	0.18
Crackerneck---	Limited wetness (limited) droughty (limited)	0.66 0.60	Limited small stones (limited) infrequent flooding (limited) deep to water (moderately limited)	1.00 0.80 0.42	Limited small stones (limited) droughty (limited)	1.00 0.60	Moderately limited deep to water (moderately limited)	0.42	Slightly limited seepage (slightly limited)	0.07
70080: Noark-----	Limited droughty (limited)	0.95	Very limited deep to water (very limited) small stones (limited) infrequent flooding (limited)	1.00 0.87 0.80	Limited droughty (limited) small stones (limited)	0.95 0.87	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (moderately limited)	1.00 0.45
Clarksville---	Moderately limited droughty (moderately limited)	0.39	Very limited deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Moderately limited droughty (moderately limited)	0.39	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (moderately limited)	1.00 0.45
Crackerneck, karst-----	Limited wetness (limited) droughty (slightly limited)	0.99 0.17	Limited infrequent flooding (limited) small stones (limited) deep to water (slightly limited)	0.80 0.73 0.30	Limited small stones (limited) droughty (slightly limited)	0.73 0.17	Slightly limited deep to water (slightly limited)	0.30	Limited slope (limited) seepage (slightly limited)	0.91 0.07

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
70081:										
Rueter-----	Limited droughty (very limited)	0.99	Very limited deep to water (very limited) small stones (very limited) infrequent flooding (limited)	1.00 1.00 0.80	Very limited small stones (very limited) droughty (very limited)	1.00 0.99	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (moderately limited)	1.00 0.45
Goss-----	Moderately limited droughty (moderately limited)	0.44	Very limited deep to water (very limited) infrequent flooding (limited) small stones (limited)	1.00 0.80 0.71	Limited small stones (limited) droughty (moderately limited)	0.71 0.44	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (moderately limited)	1.00 0.45
Jollymill----	Moderately limited wetness (moderately limited) droughty (slightly limited)	0.40 0.00	Limited small stones (limited) infrequent flooding (limited) deep to water (limited)	0.87 0.80 0.74	Limited small stones (limited) droughty (slightly limited)	0.87 0.00	Limited deep to water (limited)	0.74	Very limited slope (very limited) seepage (slightly limited)	1.00 0.18
70082:										
Paintbrush----	Limited wetness (limited)	0.71	Limited infrequent flooding (limited) small stones (limited) deep to water (moderately limited)	0.80 0.80 0.40	Limited small stones (limited)	0.80	Moderately limited deep to water (moderately limited)	0.40	Not limited	
Friendly-----	Very limited wetness (very limited)	1.00	Limited infrequent flooding (limited) deep to water (slightly limited)	0.80 0.11	Not limited		Slightly limited deep to water (slightly limited)	0.11	Not limited	

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
70083: Eldorado-----	Slightly limited droughty (slightly limited)	0.02	Very limited deep to water (very limited) infrequent flooding (limited) small stones (slightly limited)	1.00 0.80 0.30	Slightly limited small stones (slightly limited) droughty (slightly limited)	0.30 0.02	Very limited deep to water (very limited)	1.00	Limited slope (limited) seepage (moderately limited)	0.66 0.45
70150: Moko-----	Very limited shallow to bedrock (very limited) droughty (very limited)	1.00 1.00	Very limited deep to water (very limited) infrequent flooding (limited) small stones (moderately limited)	1.00 0.80 0.36	Very limited droughty (very limited) small stones (moderately limited)	1.00 0.36	Very limited deep to water (very limited) soil reaction (limited)	1.00 0.78	Very limited slope (very limited) soil reaction (limited) seepage (moderately limited)	1.00 0.78 0.45
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
71253: Hartville-----	Very limited wetness (very limited)	1.00	Limited small stones (limited) infrequent flooding (limited) deep to water (slightly limited)	1.00 0.80 0.11	Limited small stones (limited)	1.00	Slightly limited deep to water (slightly limited)	0.11	Not limited	
71255: Britwater-----	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	Moderately limited seepage (moderately limited) slope (moderately limited)	0.45 0.31
71256: Townhole-----	Moderately limited wetness (moderately limited)	0.32	Limited deep to water (limited) infrequent flooding (limited)	0.96 0.80	Not limited		Limited deep to water (limited)	0.96	Limited slope (limited)	0.91

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
71256: Aslinger-----	Limited wetness (limited)	0.93	Limited infrequent flooding (limited) deep to water (moderately limited)	0.80 0.32	Not limited		Moderately limited deep to water (moderately limited)	0.32	Limited slope (limited) seepage (slightly limited)	0.91 0.18
71257: Townhole, karst-----	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	Not limited	
Aslinger, karst-----	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	Slightly limited seepage (slightly limited)	0.18
71258: Maplegrove----	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	Slightly limited seepage (slightly limited)	0.18
Carl-----	Very limited wetness (very limited)	1.00	Limited infrequent flooding (limited)	0.80	Not limited		Not limited		Not limited	
71752: Bearthicket---	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

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
71753: Cedargap-----	Very limited droughty (very limited)	1.00	Very limited deep to water (very limited) small stones (very limited)	1.00 1.00	Very limited small stones (very limited) droughty (very limited)	1.00 1.00	Very limited deep to water (very limited)	1.00	Moderately limited seepage (moderately limited)	0.45
Pinerun-----	Slightly limited droughty (slightly limited)	0.01	Very limited deep to water (very limited) infrequent flooding (moderately limited)	1.00 0.50	Slightly limited droughty (slightly limited)	0.01	Very limited deep to water (very limited)	1.00	Moderately limited seepage (moderately limited)	0.45
71754: Waben-----	Limited droughty (limited)	0.92	Very limited deep to water (very limited) small stones (very limited) infrequent flooding (limited)	1.00 1.00 0.80	Very limited small stones (very limited) droughty (limited)	1.00 0.92	Very limited deep to water (very limited)	1.00	Limited seepage (limited) slope (moderately limited)	0.79 0.31
Cedargap-----	Very limited droughty (very limited)	1.00	Very limited deep to water (very limited) small stones (very limited) infrequent flooding (moderately limited)	1.00 1.00 0.50	Very limited small stones (very limited) droughty (very limited)	1.00 1.00	Very limited deep to water (very limited)	1.00	Moderately limited seepage (moderately limited)	0.45
71755: Cedargap-----	Very limited droughty (very limited)	1.00	Very limited deep to water (very limited) small stones (very limited) infrequent flooding (moderately limited)	1.00 1.00 0.50	Very limited droughty (very limited) small stones (very limited)	1.00 1.00	Very limited deep to water (very limited)	1.00	Moderately limited seepage (moderately limited)	0.45
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

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
73116: Pomme-----	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	Moderately limited seepage (moderately limited) slope (moderately limited)	0.45 0.31
73120: Rueter-----	Not limited		Very limited deep to water (very limited) small stones (very limited) infrequent flooding (limited)	1.00 1.00 0.80	Very limited small stones (very limited)	1.00	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (limited)	1.00 0.79
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) seepage (slightly limited)	1.00 0.18
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73349: Boskydell----	Very limited wetness (very limited) droughty (limited)	1.00 0.74	Limited infrequent flooding (limited) small stones (limited) deep to water (slightly limited)	0.80 0.73 0.21	Limited droughty (limited) small stones (limited)	0.74 0.73	Slightly limited deep to water (slightly limited)	0.21	Very limited slope (very limited)	1.00
73350: Clinkenbeard--	Very limited droughty (very limited) large stones (moderately limited) depth to bedrock (slightly limited)	1.00 0.56 0.21	Very limited deep to water (very limited) infrequent flooding (limited) large stones (moderately limited)	1.00 0.80 0.56	Very limited droughty (very limited) large stones (moderately limited)	1.00 0.56	Very limited deep to water (very limited)	1.00	Limited slope (limited) seepage (slightly limited)	0.91 0.15

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
73350: Gobbler-----	Moderately limited droughty (moderately limited) large stones (moderately limited)	0.49  0.30	Very limited deep to water (very limited) infrequent flooding (limited) large stones (moderately limited)	1.00  0.80 0.30	Moderately limited droughty (moderately limited) large stones (moderately limited)	0.49  0.30	Very limited deep to water (very limited)	1.00	Limited slope (limited) seepage (moderately limited)	0.91  0.42
73351: Sonsac-----	Very limited droughty (very limited) depth to bedrock (moderately limited)	1.00  0.42	Very limited deep to water (very limited) small stones (very limited) infrequent flooding (limited)	1.00  1.00 0.80	Very limited droughty (very limited) small stones (very limited)	1.00  1.00	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (moderately limited)	1.00  0.39
Rueter-----	Limited droughty (limited)	0.98	Very limited deep to water (very limited) infrequent flooding (limited) small stones (moderately limited)	1.00  0.80 0.48	Limited droughty (limited) small stones (moderately limited)	0.98  0.48	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (moderately limited)	1.00  0.45
73352: Jollymill----	Moderately limited wetness (moderately limited) droughty (slightly limited)	0.51  0.00	Limited infrequent flooding (limited) deep to water (moderately limited) small stones (slightly limited)	0.80  0.53 0.30	Slightly limited small stones (slightly limited) droughty (slightly limited)	0.30  0.00	Moderately limited deep to water (moderately limited)	0.53	Very limited slope (very limited) seepage (slightly limited)	1.00  0.18
Bendavis-----	Very limited droughty (very limited) wetness (limited) depth to bedrock (slightly limited)	1.00  0.66 0.21	Very limited small stones (very limited) infrequent flooding (limited) deep to water (moderately limited)	1.00  0.80 0.42	Very limited droughty (very limited) small stones (very limited)	1.00  1.00	Moderately limited deep to water (moderately limited)	0.42	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
73353:										
Hailey-----	Slightly limited droughty (slightly limited)	0.20	Very limited deep to water (very limited) infrequent flooding (limited) small stones (limited)	1.00 0.80 0.76	Limited small stones (limited) droughty (slightly limited)	0.76 0.20	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (very limited)	1.00 1.00
Sonsac-----	Very limited droughty (very limited) large stones (limited) depth to bedrock (moderately limited)	1.00 0.79 0.53	Very limited deep to water (very limited) infrequent flooding (limited) large stones (limited)	1.00 0.80 0.79	Very limited droughty (very limited) large stones (limited)	1.00 0.79	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (moderately limited)	1.00 0.45
73355:										
Moko-----	Very limited shallow to bedrock (very limited) droughty (very limited)	1.00 1.00	Very limited deep to water (very limited) infrequent flooding (limited) small stones (moderately limited)	1.00 0.80 0.31	Very limited droughty (very limited) small stones (moderately limited)	1.00 0.31	Very limited deep to water (very limited)	1.00	Very limited slope (very limited) seepage (moderately limited)	1.00 0.45
Blueye-----	Moderately limited depth to bedrock (moderately limited) droughty (slightly limited)	0.58 0.11	Very limited deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Slightly limited droughty (slightly limited)	0.11	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	
73356:										
Moko-----	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) seepage (moderately limited)	1.00 0.45
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	

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
73357:										
Moko-----	Very limited shallow to bedrock (very limited)	1.00	Very limited deep to water (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited deep to water (very limited)	1.00	Very limited slope (very limited)	1.00
	droughty (very limited)	1.00	infrequent flooding (limited)	0.80	large stones (limited)	0.60	soil reaction (slightly limited)	0.00	seepage (moderately limited)	0.45
	large stones (limited)	0.60	large stones (limited)	0.60					soil reaction (slightly limited)	0.00
Boskydell----	Very limited wetness (very limited)	1.00	Limited infrequent flooding (limited)	0.80	Very limited droughty (very limited)	1.00	Slightly limited deep to water (slightly limited)	0.06	Very limited slope (very limited)	1.00
	droughty (very limited)	1.00	large stones (moderately limited)	0.40	large stones (moderately limited)	0.40				
	depth to bedrock (limited)	0.66	depth to water (slightly limited)	0.06						
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73358:										
Eldorado-----	Slightly limited droughty (slightly limited)	0.00	Very limited deep to water (very limited)	1.00	Slightly limited droughty (slightly limited)	0.00	Very limited deep to water (very limited)	1.00	Limited slope (limited)	0.66
			infrequent flooding (limited)	0.80					seepage (moderately limited)	0.45
Moko-----	Very limited shallow to bedrock (very limited)	1.00	Very limited deep to water (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited deep to water (very limited)	1.00	Limited slope (limited)	0.66
	droughty (very limited)	1.00	infrequent flooding (limited)	0.80	small stones (moderately limited)	0.60			seepage (moderately limited)	0.45
			small stones (moderately limited)	0.60						
73359:										
Bona-----	Limited droughty (limited)	0.75	Very limited deep to water (very limited)	1.00	Limited droughty (limited)	0.75	Very limited deep to water (very limited)	1.00	Very limited slope (very limited)	1.00
	large stones (moderately limited)	0.30	infrequent flooding (limited)	0.80	large stones (moderately limited)	0.30			seepage (slightly limited)	0.18
			large stones (moderately limited)	0.30						

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
73359:										
Moko-----	Very limited shallow to bedrock (very limited)	1.00	Very limited deep to water (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited deep to water (very limited)	1.00	Very limited slope (very limited)	1.00
	droughty (very limited)	1.00	infrequent flooding (limited)	0.80	small stones (moderately limited)	0.60			seepage (moderately limited)	0.45
			small stones (moderately limited)	0.60						
74640:										
Hootentown----	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
			infrequent flooding (limited)	0.80						
99000:										
Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99007:										
Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99016:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Riverwash----	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
70067: Pembroke, karst-----	Very limited ponded (very limited)	1.00	Very limited ponded (very limited) shrink-swell (slightly limited) depth to bedrock (slightly limited)	1.00 0.14 0.07	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited) low strength (very limited)	1.00 1.00	Very limited ponded (wetness) (very limited)	1.00
70068: Bendavis, karst-----	Moderately limited depth to bedrock (moderately limited)	0.42	Very limited hard bedrock <40" (very limited)	1.00	Moderately limited depth to bedrock (moderately limited)	0.42	Moderately limited depth to bedrock (moderately limited)	0.42	Limited droughty (limited) too acid (moderately limited) depth to bedrock (slightly limited)	0.94 0.48 0.27
Jollymill, karst-----	Moderately limited shrink-swell (moderately limited) wetness (moderately limited)	0.45 0.45	Very limited wetness (very limited) depth to bedrock (limited) shrink-swell (slightly limited)	1.00 0.87 0.21	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited droughty (moderately limited) too acid (slightly limited)	0.54 0.18
Crackerneck, karst-----	Moderately limited wetness (moderately limited) large stones (slightly limited)	0.40 0.02	Limited wetness (limited) depth to bedrock (slightly limited) large stones (slightly limited)	0.99 0.09 0.02	Slightly limited large stones (slightly limited)	0.02	Slightly limited large stones (slightly limited)	0.02	Limited droughty (limited) small stones (moderately limited) too acid (slightly limited)	0.66 0.33 0.24

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
70069: Jollymill, karst-----	Moderately limited shrink-swell (moderately limited)	0.45	Very limited wetness (very limited)	1.00	Moderately limited shrink-swell (moderately limited)	0.45	Very limited low strength (very limited)	1.00	Very limited small stones (very limited)	1.00
	wetness (moderately limited)	0.45	depth to bedrock (moderately limited)	0.56	slope (slightly limited)	0.15	shrink-swell (moderately limited)	0.45	droughty (limited)	0.83
			shrink-swell (slightly limited)	0.19					too acid (moderately limited)	0.48
Crackerneck, karst-----	Moderately limited wetness (moderately limited)	0.40	Limited wetness (limited)	0.99	Moderately limited slope (moderately limited)	0.45	Not limited		Moderately limited small stones (moderately limited)	0.33
70070: Crackerneck, karst-----	Limited wetness (limited)	0.66	Very limited wetness (very limited)	1.00	Very limited slope (very limited)	1.00	Moderately limited wetness (moderately limited)	0.34	Very limited small stones (very limited)	1.00
	slope (moderately limited)	0.45	slope (moderately limited)	0.45	wetness (moderately limited)	0.34	large stones (slightly limited)	0.04	droughty (limited)	0.80
	large stones (slightly limited)	0.04	depth to bedrock (slightly limited)	0.09	large stones (slightly limited)	0.04	slope (slightly limited)	0.04	wetness (moderately limited)	0.34
Hailey, karst	Limited large stones (limited)	0.87	Limited large stones (limited)	0.87	Very limited slope (very limited)	1.00	Limited large stones (limited)	0.87	Very limited small stones (very limited)	1.00
	slope (moderately limited)	0.45	slope (moderately limited)	0.45	large stones (limited)	0.87	slope (slightly limited)	0.04	droughty (very limited)	1.00
									too acid (slightly limited)	0.18
70071: Sowcoon-----	Very limited wetness (very limited)	1.00	Very limited ponded (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00
	ponded (very limited)	1.00	wetness (very limited)	1.00	wetness (limited)	0.68	low strength (very limited)	1.00	small stones (limited)	1.00
	shrink-swell (moderately limited)	0.45	shrink-swell (moderately limited)	0.32	shrink-swell (moderately limited)	0.45	wetness (limited)	0.68	wetness (limited)	0.68

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
70071: Viburnum-----	Moderately limited wetness (moderately limited) shrink-swell (moderately limited)	0.59  0.45	Very limited wetness (very limited) shrink-swell (moderately limited)	1.00  0.45	Moderately limited shrink-swell (moderately limited) wetness (slightly limited)	0.45  0.28	Moderately limited shrink-swell (moderately limited) wetness (slightly limited)	0.45  0.28	Slightly limited wetness (slightly limited)	0.28
70072: Rueter-----	Moderately limited slope (moderately limited)	0.45	Moderately limited slope (moderately limited)	0.45	Very limited slope (very limited)	1.00	Slightly limited slope (slightly limited)	0.04	Very limited small stones (very limited) droughty (moderately limited) slope (slightly limited)	1.00  0.34  0.04
Pomme-----	Moderately limited slope (moderately limited) shrink-swell (moderately limited)	0.45  0.45	Moderately limited slope (moderately limited) shrink-swell (slightly limited)	0.45  0.20	Very limited slope (very limited) shrink-swell (moderately limited)	1.00  0.45	Moderately limited shrink-swell (moderately limited) slope (slightly limited)	0.45  0.04	Slightly limited slope (slightly limited)	0.04
70073: Beemont-----	Very limited shrink-swell (very limited) slope (limited)	1.00  0.83	Very limited shrink-swell (very limited) slope (limited) depth to bedrock (limited)	1.00  0.83  0.64	Very limited shrink-swell (very limited) slope (very limited)	1.00  1.00	Very limited low strength (very limited) shrink-swell (very limited) slope (limited)	1.00  1.00  0.84	Limited slope (limited) large stones (limited)	0.84  0.79
70074: Townhole-----	Moderately limited wetness (moderately limited)	0.49	Very limited wetness (very limited) shrink-swell (slightly limited)	1.00  0.14	Slightly limited wetness (slightly limited)	0.09	Slightly limited wetness (slightly limited)	0.09	Slightly limited wetness (slightly limited)	0.09
70075: Waben-----	Not limited		Not limited		Limited slope (limited)	0.68	Not limited		Very limited small stones (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
70076:										
Clarksville---	Moderately limited slope (moderately limited)	0.45	Moderately limited slope (moderately limited)	0.45	Very limited slope (very limited)	1.00	Moderately limited shrink-swell (moderately limited)	0.45	Very limited large stones >30% (very limited)	1.00
	shrink-swell (moderately limited)	0.45	large stones (moderately limited)	0.45	shrink-swell (moderately limited)	0.45	large stones (moderately limited)	0.45	too acid (slightly limited)	0.30
	large stones (moderately limited)	0.45	shrink-swell (slightly limited)	0.18	large stones (moderately limited)	0.45	slope (slightly limited)	0.04	droughty (slightly limited)	0.28
Noark-----	Moderately limited slope (moderately limited)	0.45	Moderately limited slope (moderately limited)	0.45	Very limited slope (very limited)	1.00	Limited low strength (limited)	0.78	Very limited small stones (very limited)	1.00
	shrink-swell (moderately limited)	0.45	large stones (moderately limited)	0.31	shrink-swell (moderately limited)	0.45	shrink-swell (moderately limited)	0.45	droughty (limited)	0.96
	large stones (moderately limited)	0.31	shrink-swell (slightly limited)	0.27	large stones (moderately limited)	0.31	large stones (moderately limited)	0.31	too acid (slightly limited)	0.24
70077:										
Flagspring---	Moderately limited slope (moderately limited)	0.45	Moderately limited slope (moderately limited)	0.45	Very limited slope (very limited)	1.00	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited too acid (moderately limited)	0.54
	shrink-swell (moderately limited)	0.45	shrink-swell (moderately limited)	0.45	shrink-swell (moderately limited)	0.45	slope (slightly limited)	0.04	slope (slightly limited)	0.04
70078:										
Goss-----	Limited slope (limited)	0.91	Limited slope (limited)	0.91	Very limited slope (very limited)	1.00	Limited slope (limited)	0.96	Very limited small stones (very limited)	1.00
			shrink-swell (slightly limited)	0.07					slope (limited)	0.96
									droughty (limited)	0.81
Rueter-----	Limited slope (limited)	0.91	Limited slope (limited)	0.91	Very limited slope (very limited)	1.00	Limited slope (limited)	0.96	Very limited small stones (very limited)	1.00
	shrink-swell (moderately limited)	0.45	shrink-swell (slightly limited)	0.22	shrink-swell (moderately limited)	0.45	shrink-swell (moderately limited)	0.45	droughty (very limited)	1.00
	large stones (slightly limited)	0.14	large stones (slightly limited)	0.14	large stones (slightly limited)	0.14	large stones (slightly limited)	0.14	slope (limited)	0.96

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
70079:										
Viburnum-----	Limited wetness (limited) shrink-swell (moderately limited)	0.79 0.45	Very limited wetness (very limited) shrink-swell (moderately limited)	1.00 0.45	Moderately limited wetness (moderately limited) shrink-swell (moderately limited)	0.45 0.45	Very limited low strength (very limited) wetness (moderately limited) shrink-swell (moderately limited)	1.00 0.45	Moderately limited wetness (moderately limited)	0.45
Crackerneck---	Limited wetness (limited)	0.66	Very limited wetness (very limited) shrink-swell (slightly limited)	1.00 0.22	Moderately limited wetness (moderately limited)	0.34	Moderately limited wetness (moderately limited)	0.34	Very limited small stones (very limited) droughty (limited) wetness (moderately limited)	1.00 0.60 0.34
70080:										
Noark-----	Moderately limited slope (moderately limited) shrink-swell (moderately limited) large stones (moderately limited)	0.45 0.45 0.35	Moderately limited slope (moderately limited) large stones (moderately limited) shrink-swell (slightly limited)	0.45 0.35 0.27	Very limited slope (very limited) shrink-swell (moderately limited) large stones (moderately limited)	1.00 0.45 0.35	Moderately limited shrink-swell (moderately limited) large stones (moderately limited) slope (slightly limited)	0.45 0.35 0.04	Very limited small stones (very limited) droughty (limited) too acid (slightly limited)	1.00 0.95 0.24
Clarksville---	Moderately limited slope (moderately limited) shrink-swell (moderately limited) large stones (moderately limited)	0.45 0.45 0.33	Moderately limited slope (moderately limited) large stones (moderately limited) shrink-swell (slightly limited)	0.45 0.33 0.18	Very limited slope (very limited) shrink-swell (moderately limited) large stones (moderately limited)	1.00 0.45 0.33	Moderately limited shrink-swell (moderately limited) large stones (moderately limited) slope (slightly limited)	0.45 0.33 0.04	Limited small stones (limited) large stones (moderately limited) droughty (moderately limited)	0.73 0.45 0.39
Crackerneck, karst-----	Limited wetness (limited) shrink-swell (moderately limited) large stones (slightly limited)	0.99 0.45 0.01	Very limited wetness (very limited) shrink-swell (slightly limited) large stones (slightly limited)	1.00 0.17 0.01	Limited slope (limited) wetness (limited) shrink-swell (moderately limited)	0.68 0.60 0.45	Very limited low strength (very limited) wetness (limited) shrink-swell (moderately limited)	1.00 0.60 0.45	Very limited small stones (very limited) wetness (limited) too acid (moderately limited)	1.00 0.60 0.36

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
70081:										
Rueter-----	Very limited slope (very limited)	1.00	Very limited slope (very limited) shrink-swell (slightly limited)	1.00 0.05	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited slope (very limited) small stones (very limited) droughty (very limited)	1.00 1.00 0.99
Goss-----	Very limited slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited slope (very limited) shrink-swell (slightly limited)	1.00 0.30	Very limited slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited slope (very limited) small stones (very limited) large stones (moderately limited)	1.00 1.00 0.60
Jollymill----	Very limited slope (very limited) shrink-swell (moderately limited) wetness (moderately limited)	1.00 0.45 0.40	Very limited slope (very limited) wetness (limited) depth to bedrock (limited)	1.00 0.99 0.82	Very limited slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited slope (very limited) small stones (very limited) too acid (slightly limited)	1.00 1.00 0.18
70082:										
Paintbrush----	Limited wetness (limited) shrink-swell (moderately limited)	0.71 0.45	Very limited wetness (very limited) shrink-swell (moderately limited)	1.00 0.37	Moderately limited shrink-swell (moderately limited) wetness (moderately limited)	0.45 0.39	Very limited low strength (very limited) shrink-swell (moderately limited) wetness (moderately limited)	1.00 0.45 0.39	Very limited small stones (very limited) wetness (moderately limited) large stones (moderately limited)	1.00 0.39 0.30
Friendly-----	Very limited wetness (very limited) shrink-swell (very limited)	1.00 1.00	Very limited wetness (very limited) shrink-swell (limited)	1.00 0.72	Very limited shrink-swell (very limited) wetness (limited)	1.00 0.86	Very limited low strength (very limited) shrink-swell (very limited) wetness (limited)	1.00 1.00 0.86	Limited wetness (limited)	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						
70083: Eldorado-----	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited slope (moderately limited) shrink-swell (moderately limited)	0.45 0.45	Moderately limited shrink-swell (moderately limited)	0.45	Very limited small stones (very limited) droughty (slightly limited)	1.00 0.02
70150: Moko-----	Very limited hard bedrock <20" (very limited) slope (very limited) large stones (slightly limited)	1.00 1.00 0.04	Very limited hard bedrock <40" (very limited) slope (very limited) large stones (slightly limited)	1.00 1.00 0.04	Very limited hard bedrock <20" (very limited) slope (very limited) large stones (slightly limited)	1.00 1.00 0.04	Very limited hard bedrock <20" (very limited) slope (very limited) large stones (slightly limited)	1.00 1.00 0.04	Very limited slope (very limited) shallow to bedrock (very limited) droughty (very limited)	1.00 1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
71253: Hartville-----	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 0.86	Very limited shrink-swell (very limited) low strength (very limited) wetness (limited)	1.00 1.00 0.86	Very limited small stones (very limited) wetness (limited)	1.00 0.86
71255: Britwater-----	Moderately limited shrink-swell (moderately limited)	0.45	Slightly limited shrink-swell (slightly limited)	0.27	Moderately limited shrink-swell (moderately limited) slope (slightly limited)	0.45 0.15	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited small stones (moderately limited) too acid (slightly limited)	0.33 0.24
71256: Townhole-----	Moderately limited shrink-swell (moderately limited) wetness (moderately limited)	0.45 0.32	Limited wetness (limited) shrink-swell (slightly limited)	0.97 0.15	Limited slope (limited) shrink-swell (moderately limited)	0.68 0.45	Moderately limited shrink-swell (moderately limited)	0.45	Slightly limited small stones (slightly limited)	0.06

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
71256: Aslinger-----	Limited wetness (limited)	0.93	Very limited wetness (very limited)	1.00	Limited slope (limited) wetness (moderately limited)	0.68 0.56	Very limited low strength (very limited) wetness (moderately limited)	1.00 0.56	Moderately limited wetness (moderately limited)	0.56
71257: Townhole, karst-----	Limited wetness (limited)	0.71	Very limited wetness (very limited) shrink-swell (slightly limited)	1.00 0.08	Moderately limited wetness (moderately limited)	0.39	Moderately limited wetness (moderately limited)	0.39	Moderately limited wetness (moderately limited) too acid (slightly limited)	0.39 0.12
Aslinger, karst-----	Moderately limited wetness (moderately limited)	0.45	Very limited wetness (very limited)	1.00	Not limited		Slightly limited low strength (slightly limited)	0.22	Not limited	
71258: Maplegrove----	Moderately limited shrink-swell (moderately limited) wetness (moderately limited)	0.45 0.45	Very limited wetness (very limited) shrink-swell (moderately limited)	1.00 0.43	Moderately limited shrink-swell (moderately limited)	0.45	Very limited low strength (very limited) shrink-swell (moderately limited)	1.00 0.45	Not limited	
Carl-----	Very limited wetness (very limited) shrink-swell (very limited) flooding (very limited)	1.00 1.00 1.00	Very limited shrink-swell (very limited) flooding (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited flooding (very limited) shrink-swell (very limited) wetness (very limited)	1.00 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) too clayey (moderately limited)	1.00 0.60
71752: Bearthicket---	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) low strength (very limited)	1.00 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
71753: Cedargap-----	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) small stones (very limited) droughty (very limited)	1.00 1.00 1.00
Pinerun-----	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) droughty (slightly limited)	0.60 0.01
71754: Waben-----	Not limited		Not limited		Slightly limited slope (slightly limited)	0.15	Not limited		Very limited small stones (very limited) droughty (limited)	1.00 0.92
Cedargap-----	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 small stones (very limited) droughty (very limited) flooding (moderately limited)	1.00 1.00 0.60
71755: Cedargap-----	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) small stones (very limited) droughty (very limited)	1.00 1.00 1.00
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
73116: Pomme-----	Moderately limited shrink-swell (moderately limited)	0.45	Slightly limited shrink-swell (slightly limited)	0.29	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited shrink-swell (moderately limited)	0.45	Not limited	
					slope (slightly limited)	0.15				
73120: 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
									small stones (very limited)	1.00
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 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
	shrink-swell (moderately limited)	0.45	shrink-swell (moderately limited)	0.45	shrink-swell (moderately limited)	0.45	low strength (very limited)	1.00	droughty (very limited)	1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73349: Boskydell----	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited shrink-swell (very limited)	1.00	Very limited small stones (very limited)	1.00
	shrink-swell (very limited)	1.00	shrink-swell (very limited)	1.00	shrink-swell (very limited)	1.00	slope (very limited)	1.00	slope (very limited)	1.00
	slope (limited)	0.99	slope (limited)	0.99	wetness (limited)	0.73	wetness (limited)	0.73	droughty (limited)	0.74
73350: Clinkenbeard--	Very limited shrink-swell (very limited)	1.00	Very limited hard bedrock <40" (very limited)	1.00	Very limited shrink-swell (very limited)	1.00	Very limited shrink-swell (very limited)	1.00	Very limited droughty (very limited)	1.00
	large stones (limited)	0.73	shrink-swell (very limited)	1.00	large stones (limited)	0.73	large stones (limited)	0.73	large stones >30% (very limited)	1.00
	depth to bedrock (moderately limited)	0.36	large stones (limited)	0.73	slope (limited)	0.68	depth to bedrock (moderately limited)	0.36	small stones (slightly limited)	0.28

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
73350: Gobbler-----	Moderately limited shrink-swell (moderately limited)	0.45	Limited depth to bedrock (limited) shrink-swell (slightly limited)	0.60 0.26	Limited slope (limited) shrink-swell (moderately limited)	0.68 0.45	Moderately limited shrink-swell (moderately limited)	0.45	Very limited large stones >30% (very limited) small stones (limited) droughty (moderately limited)	1.00 0.72 0.49
73351: Sonsac-----	Very limited slope (very limited) large stones (limited) depth to bedrock (moderately limited)	1.00 0.73 0.51	Very limited hard bedrock <40" (very limited) slope (very limited) large stones (limited)	1.00 1.00 0.73	Very limited slope (very limited) large stones (limited) depth to bedrock (moderately limited)	1.00 0.73 0.51	Very limited slope (very limited) large stones (limited) depth to bedrock (moderately limited)	1.00 0.73 0.51	Very limited slope (very limited) small stones (very limited) droughty (very limited)	1.00 1.00 1.00
Rueter-----	Very limited slope (very limited)	1.00	Very limited slope (very limited) shrink-swell (slightly limited)	1.00 0.07	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited slope (very limited) small stones (very limited) droughty (limited)	1.00 1.00 0.98
73352: Jollymill----	Moderately limited wetness (moderately limited) slope (moderately limited) large stones (slightly limited)	0.51 0.45 0.02	Very limited wetness (very limited) depth to bedrock (limited) slope (moderately limited)	1.00 0.94 0.45	Very limited slope (very limited) wetness (slightly limited) large stones (slightly limited)	1.00 0.13 0.02	Slightly limited wetness (slightly limited) slope (slightly limited) large stones (slightly limited)	0.13 0.04 0.02	Very limited small stones (very limited) wetness (slightly limited) slope (slightly limited)	1.00 0.13 0.04
Bendavis-----	Limited wetness (limited) slope (moderately limited) depth to bedrock (moderately limited)	0.66 0.45 0.36	Very limited hard bedrock <40" (very limited) wetness (very limited) slope (moderately limited)	1.00 1.00 0.45	Very limited slope (very limited) depth to bedrock (moderately limited) wetness (moderately limited)	1.00 0.36 0.34	Moderately limited depth to bedrock (moderately limited) wetness (moderately limited) slope (slightly limited)	0.36 0.34 0.04	Very limited small stones (very limited) droughty (very limited) too acid (moderately limited)	1.00 1.00 0.36

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
73353:										
Hailey-----	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 (very limited) large stones (moderately limited)	1.00 1.00 0.36
Sonsac-----	Very limited slope (very limited) large stones (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.57	Very limited hard bedrock <40" (very limited) slope (very limited) large stones (very limited)	1.00 1.00 1.00	Very limited slope (very limited) large stones (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.57	Very limited slope (very limited) large stones (very limited) low strength (very limited)	1.00 1.00 1.00	Very limited large stones >30% (very limited) slope (very limited) droughty (very limited)	1.00 1.00 1.00
73355:										
Moko-----	Very limited hard bedrock <20" (very limited) slope (moderately limited) large stones (slightly limited)	1.00 0.45 0.04	Very limited hard bedrock <40" (very limited) slope (moderately limited) large stones (slightly limited)	1.00 0.45 0.04	Very limited hard bedrock <20" (very limited) slope (very limited) large stones (slightly limited)	1.00 1.00 0.04	Very limited hard bedrock <20" (very limited) slope (slightly limited) large stones (slightly limited)	1.00 0.04 0.04	Very limited shallow to bedrock (very limited) droughty (very limited) small stones (very limited)	1.00 1.00 1.00
Blueye-----	Very limited shrink-swell (very limited) depth to bedrock (moderately limited) slope (moderately limited)	1.00 0.59 0.45	Very limited hard bedrock <40" (very limited) shrink-swell (very limited) slope (moderately limited)	1.00 1.00 0.45	Very limited slope (very limited) shrink-swell (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.59	Very limited shrink-swell (very limited) low strength (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.59	Moderately limited depth to bedrock (moderately limited) small stones (slightly limited) droughty (slightly limited)	0.58 0.30 0.11
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73356:										
Moko-----	Very limited hard bedrock <20" (very limited) slope (very limited) large stones (limited)	1.00 1.00 0.61	Very limited hard bedrock <40" (very limited) slope (very limited) large stones (limited)	1.00 1.00 0.61	Very limited hard bedrock <20" (very limited) slope (very limited) large stones (limited)	1.00 1.00 0.61	Very limited hard bedrock <20" (very limited) slope (very limited) large stones (limited)	1.00 1.00 0.61	Very limited slope (very limited) shallow to bedrock (very limited) droughty (very limited)	1.00 1.00 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
73356: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73357: Moko-----	Very limited hard bedrock <20" (very limited) slope (very limited) large stones (very limited)	1.00  1.00  1.00	Very limited hard bedrock <40" (very limited) slope (very limited) large stones (very limited)	1.00  1.00  1.00	Very limited hard bedrock <20" (very limited) slope (very limited) large stones (very limited)	1.00  1.00  1.00	Very limited hard bedrock <20" (very limited) slope (very limited) low strength (very limited)	1.00  1.00  1.00	Very limited slope (very limited) shallow to bedrock (very limited) droughty (very limited)	1.00  1.00  1.00
Boskydell----	Very limited wetness (very limited) slope (very limited) shrink-swell (very limited)	1.00  1.00  1.00	Very limited wetness (very limited) slope (very limited) shrink-swell (very limited)	1.00  1.00  1.00	Very limited slope (very limited) shrink-swell (very limited) wetness (limited)	1.00  1.00  0.94	Very limited low strength (very limited) slope (very limited) shrink-swell (very limited)	1.00  1.00  1.00	Very limited slope (very limited) large stones >30% (very limited) droughty (very limited)	1.00  1.00  1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73358: Eldorado-----	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited slope (moderately limited) shrink-swell (moderately limited)	0.45  0.45	Moderately limited shrink-swell (moderately limited)	0.45	Moderately limited small stones (moderately limited) droughty (slightly limited)	0.36  0.00
Moko-----	Very limited hard bedrock <20" (very limited) large stones (moderately limited)	1.00  0.40	Very limited hard bedrock <40" (very limited) large stones (moderately limited)	1.00  0.40	Very limited hard bedrock <20" (very limited) slope (moderately limited) large stones (moderately limited)	1.00  0.45  0.40	Very limited hard bedrock <20" (very limited) large stones (moderately limited)	1.00  0.40	Very limited shallow to bedrock (very limited) droughty (very limited) small stones (very limited)	1.00  1.00  1.00
73359: Bona-----	Limited slope (limited) shrink-swell (moderately limited) large stones (slightly limited)	0.76  0.45  0.13	Limited shrink-swell (limited) slope (limited) depth to bedrock (slightly limited)	0.76  0.76  0.17	Very limited slope (very limited) shrink-swell (moderately limited) large stones (slightly limited)	1.00  0.45  0.13	Limited slope (limited) shrink-swell (moderately limited) large stones (slightly limited)	0.63  0.45  0.13	Very limited large stones >30% (very limited) small stones (limited) droughty (limited)	1.00  0.98  0.75

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
73359:										
Moko-----	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	large stones (limited)	0.69	droughty (very limited)	1.00
	large stones (limited)	0.69	large stones (limited)	0.69	large stones (limited)	0.69	slope (limited)	0.63	small stones (very limited)	1.00
74640:										
Hootentown----	Very limited flooding (very limited)	1.00	Very limited flooding (very limited) shrink-swell (slightly limited)	1.00	Very limited flooding (very limited)	1.00	Limited flooding (rare) (limited)	0.90	Not limited	
				0.07						
99000:										
Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99007:										
Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99016:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Riverwash----	Not rated		Not rated		Not rated		Not rated		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						
70067: Pembroke, karst-----	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00						
	percs slowly (slightly limited)	0.25	seepage (moderately limited)	0.50	depth to bedrock (very limited)	1.00	depth to bedrock (very limited)		too clayey (slightly limited)	0.15
	depth to bedrock (slightly limited)	0.08	depth to bedrock (slightly limited)	0.08	too clayey (slightly limited)	0.30			too acid (slightly limited)	0.12
70068: Bendavis, karst-----	Very limited depth to bedrock (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00						
	percs slowly (slightly limited)	0.10	seepage (limited)	0.92	too acid (moderately limited)	0.36			small stones >35% (very limited)	1.00
									too acid (moderately limited)	0.36
Jollymill, karst-----	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00	Limited depth to bedrock (limited)	0.75	Very limited small stones >35% (very limited)	1.00
	depth to bedrock (limited)	0.87	depth to bedrock (limited)	0.87	wetness (limited)	0.79	wetness (limited)	0.60	depth to bedrock (limited)	0.75
	percs slowly (limited)	0.71			too clayey (limited)	0.68			too acid (limited)	0.60
Crackerneck, karst-----	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00	Limited seepage (limited)	0.75	Very limited too clayey (very limited)	1.00
	percs slowly (limited)	0.82	seepage (very limited)	1.00	too clayey (very limited)	1.00	wetness (moderately limited)	0.50	small stones (limited)	0.98
	depth to bedrock (slightly limited)	0.10	depth to bedrock (slightly limited)	0.10	too acid (limited)	0.76			too acid (limited)	0.76

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
70069: Jollymill, karst-----	Very limited wetness (very limited) percs slowly (limited) depth to bedrock (moderately limited)	1.00  0.71  0.56	Very limited wetness (very limited) depth to bedrock (moderately limited) seepage (moderately limited)	1.00  0.56  0.50	Very limited depth to bedrock (very limited) too clayey (very limited) wetness (limited)	1.00  1.00  0.79	Limited wetness (limited) depth to bedrock (moderately limited)	0.60  0.42	Very limited too clayey (very limited) small stones (limited) too acid (limited)	1.00  0.99  0.60
Crackerneck, karst-----	Very limited wetness (very limited) percs slowly (limited)	1.00  0.82	Very limited wetness (very limited) slope (limited) seepage (moderately limited)	1.00  0.66  0.50	Very limited too clayey (very limited) too acid (limited) wetness (limited)	1.00  0.76  0.73	Moderately limited wetness (moderately limited)	0.50	Very limited too clayey (very limited) too acid (limited) hard to pack (limited)	1.00  0.76  0.70
70070: Crackerneck, karst-----	Very limited wetness (very limited) percs slowly (limited) depth to bedrock (slightly limited)	1.00  0.82  0.10	Very limited slope (very limited) wetness (very limited) seepage (moderately limited)	1.00  1.00  0.50	Very limited wetness (very limited) depth to bedrock (very limited) too acid (very limited)	1.00  1.00  1.00	Limited wetness (limited) slope (slightly limited)	0.83  0.04	Very limited small stones >35% (very limited) too acid (very limited) wetness (moderately limited)	1.00  1.00  0.52
Hailey, karst	Limited large stones (limited) slope (slightly limited)	0.87  0.04	Very limited slope (very limited) seepage (very limited) large stones (moderately limited)	1.00  1.00  0.35	Limited large stones (limited) seepage (limited) too clayey (limited)	0.90  0.79  0.61	Very limited seepage (very limited) slope (slightly limited)	1.00  0.04	Very limited seepage (very limited) large stones (limited) small stones (moderately limited)	1.00  0.80  0.42

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
70071:										
Sowcoon-----	Very limited ponded (wetness) (very limited) wetness (very limited) percs slowly (limited)	1.00 1.00 0.94	Very limited wetness (very limited) ponded (wetness) (very limited) seepage (moderately limited)	1.00 1.00 0.50	Very limited ponded (wetness) (very limited) wetness (very limited) too acid (moderately limited)	1.00 1.00 0.42	Very limited wetness (very limited) ponded (wetness) (very limited)	1.00 1.00	Very limited ponded (wetness) (very limited) wetness (limited) too acid (moderately limited)	1.00 0.68 0.42
Viburnum-----	Very limited wetness (very limited) percs slowly (limited)	1.00 0.71	Very limited wetness (very limited) seepage (moderately limited)	1.00 0.50	Limited wetness (limited) too acid (moderately limited) too clayey (moderately limited)	0.99 0.48 0.47	Limited wetness (limited)	0.80	Moderately limited wetness (moderately limited) too acid (moderately limited) too clayey (slightly limited)	0.50 0.48 0.23
70072:										
Rueter-----	Slightly limited percs slowly (slightly limited) slope (slightly limited)	0.25 0.04	Very limited seepage (very limited) slope (very limited)	1.00 1.00	Slightly limited too clayey (slightly limited) too acid (slightly limited) slope (slightly limited)	0.24 0.24 0.04	Limited seepage (limited) slope (slightly limited)	0.75 0.04	Very limited small stones >35% (very limited) too acid (slightly limited) too clayey (slightly limited)	1.00 0.24 0.10
Pomme-----	Slightly limited percs slowly (slightly limited) slope (slightly limited)	0.25 0.04	Very limited slope (very limited) seepage (moderately limited)	1.00 0.50	Limited too clayey (limited) slope (slightly limited)	0.94 0.04	Slightly limited slope (slightly limited)	0.04	Limited too clayey (limited) small stones (slightly limited) slope (slightly limited)	0.87 0.19 0.04
70073:										
Beemont-----	Limited percs slowly (limited) slope (limited) depth to bedrock (limited)	0.95 0.84 0.64	Very limited slope (very limited) depth to bedrock (limited)	1.00 0.64	Very limited depth to bedrock (very limited) slope (limited)	1.00 1.00 0.84	Limited slope (limited) depth to bedrock (moderately limited)	0.84 0.48	Very limited too clayey (very limited) slope (limited) hard to pack (limited)	1.00 0.84 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
70074: Townhole-----	Very limited percs slowly (very limited) wetness (very limited)	1.00  1.00	Very limited wetness (very limited) seepage (moderately limited) slope (slightly limited)	1.00  0.50 0.08	Limited wetness (limited) too clayey (limited) large stones (slightly limited)	0.86  0.68 0.11	Limited wetness (limited)	0.67	Limited small stones (limited) wetness (moderately limited) too clayey (moderately limited)	0.66  0.43 0.42
70075: Waben-----	Not limited		Very limited seepage (very limited) slope (limited)	1.00  0.91	Limited seepage (limited)	0.79	Limited seepage (limited)	0.75	Very limited small stones >35% (very limited) seepage (moderately limited)	1.00  0.50
70076: Clarksville---	Moderately limited large stones (moderately limited) percs slowly (slightly limited) slope (slightly limited)	0.45  0.25 0.04	Very limited seepage (very limited) slope (very limited) large stones (very limited)	1.00  1.00 1.00	Limited too clayey (limited) too acid (moderately limited) large stones (slightly limited)	0.71  0.36 0.15	Limited seepage (limited) slope (slightly limited)	0.63  0.04	Limited small stones (limited) too clayey (moderately limited) too acid (moderately limited)	0.73  0.47 0.36
Noark-----	Moderately limited large stones (moderately limited) percs slowly (slightly limited) slope (slightly limited)	0.31  0.25 0.04	Very limited seepage (very limited) slope (very limited)	1.00  1.00	Very limited too clayey (very limited) large stones (limited) too acid (moderately limited)	1.00  0.78 0.54	Limited seepage (limited) slope (slightly limited)	0.63  0.04	Very limited too clayey (very limited) large stones (moderately limited) too acid (moderately limited)	1.00  0.57 0.54
70077: Flagspring----	Limited percs slowly (limited) slope (slightly limited)	0.71  0.04	Very limited slope (very limited) seepage (moderately limited)	1.00  0.50	Very limited too clayey (very limited) too acid (limited) slope (slightly limited)	1.00  0.60 0.04	Slightly limited slope (slightly limited)	0.04	Very limited too clayey (very limited) hard to pack (limited) too acid (limited)	1.00  0.70 0.60

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
70078:										
Goss-----	Limited slope (limited) percs slowly (slightly limited)	0.96 0.25	Very limited slope (very limited) seepage (very limited)	1.00 1.00	Very limited too clayey (very limited) slope (limited)	1.00 0.96	Limited slope (limited) seepage (limited)	0.96 0.75	Very limited small stones >35% (very limited) too clayey (very limited) slope (limited)	1.00 1.00 0.96
Rueter-----	Limited slope (limited) percs slowly (slightly limited) large stones (slightly limited)	0.96 0.25 0.14	Very limited slope (very limited) seepage (very limited)	1.00 1.00	Very limited too clayey (very limited) slope (limited) large stones (limited)	1.00 0.96 0.77	Limited slope (limited) seepage (limited)	0.96 0.63	Very limited too clayey (very limited) slope (limited) small stones (limited)	1.00 0.96 0.70
70079:										
Viburnum-----	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 acid (limited) too clayey (moderately limited)	1.00 0.60 0.51	Limited wetness (limited)	0.90	Limited small stones (limited) too acid (limited) wetness (moderately limited)	0.85 0.60 0.55
Crackerneck---	Very limited wetness (very limited) percs slowly (limited)	1.00 0.82	Very limited wetness (very limited) seepage (moderately limited)	1.00 0.50	Very limited wetness (very limited) too clayey (very limited) too acid (limited)	1.00 1.00 0.76	Limited wetness (limited)	0.83	Very limited small stones >35% (very limited) too clayey (very limited) too acid (limited)	1.00 1.00 0.76
70080:										
Noark-----	Moderately limited large stones (moderately limited) percs slowly (slightly limited) slope (slightly limited)	0.35 0.25 0.04	Very limited seepage (very limited) slope (very limited) large stones (slightly limited)	1.00 1.00 0.00	Very limited too clayey (very limited) large stones (limited) too acid (moderately limited)	1.00 0.71 0.54	Limited seepage (limited) slope (slightly limited)	0.63 0.04	Very limited too clayey (very limited) small stones (limited) too acid (moderately limited)	1.00 0.81 0.54

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
70080:										
Clarksville---	Moderately limited large stones (moderately limited)	0.33	Very limited seepage (very limited)	1.00	Limited too clayey (limited)	0.71	Limited seepage (limited)	0.63	Limited small stones (limited)	0.73
	percs slowly (slightly limited)	0.25	slope (very limited)	1.00	too acid (moderately limited)	0.36	slope (slightly limited)	0.04	too clayey (moderately limited)	0.47
	slope (slightly limited)	0.04	large stones (very limited)	1.00	large stones (slightly limited)	0.11			too acid (moderately limited)	0.36
Crackerneck, karst-----	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00	Limited wetness (limited)	0.99	Limited too clayey (limited)	0.95
	percs slowly (limited)	0.82	slope (limited)	0.91	too clayey (limited)	0.98			hard to pack (limited)	0.70
	large stones (slightly limited)	0.01	seepage (moderately limited)	0.50	too acid (moderately limited)	0.54			wetness (moderately limited)	0.60
70081:										
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
	percs slowly (slightly limited)	0.25	seepage (very limited)	1.00	too clayey (very limited)	1.00	seepage (limited)	0.75	small stones >35% (very limited)	1.00
					too acid (slightly limited)	0.30			too clayey (very limited)	1.00
Goss-----	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 (slightly limited)	0.25	seepage (moderately limited)	0.50	too clayey (very limited)	1.00			small stones >35% (very limited)	1.00
			large stones (slightly limited)	0.01					too clayey (very limited)	1.00
Jollymill----	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
	wetness (very limited)	1.00	wetness (very limited)	1.00	depth to bedrock (very limited)	1.00	depth to bedrock (limited)	0.66	small stones >35% (very limited)	1.00
	depth to bedrock (limited)	0.82	depth to bedrock (limited)	0.82	too clayey (very limited)	1.00	wetness (moderately limited)	0.50	too clayey (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
70082: Paintbrush----	Very limited wetness (very limited) percs slowly (limited)	1.00 0.93	Very limited wetness (very limited) seepage (moderately limited)	1.00 0.50	Very limited wetness (very limited) too clayey (limited) too acid (slightly limited)	1.00 0.67 0.12	Limited wetness (limited)	0.86	Moderately limited wetness (moderately limited) too clayey (moderately limited) small stones (slightly limited)	0.53 0.41 0.29
Friendly-----	Very limited wetness (very limited) percs slowly (limited)	1.00 0.93	Very limited wetness (very limited) seepage (moderately limited)	1.00 0.50	Very limited wetness (very limited) too clayey (limited) too acid (slightly limited)	1.00 0.73 0.06	Very limited wetness (very limited)	1.00	Limited wetness (limited) too clayey (moderately limited) small stones (slightly limited)	0.86 0.50 0.07
70083: Eldorado-----	Slightly limited percs slowly (slightly limited)	0.25	Limited slope (limited) seepage (moderately limited)	0.66 0.50	Limited too clayey (limited)	0.79	Not limited		Very limited small stones >35% (very limited) too clayey (moderately limited)	1.00 0.59
70150: Moko-----	Very limited depth to bedrock (very limited) slope (very limited) large stones (slightly limited)	1.00 1.00 0.04	Very limited slope (very limited) depth to bedrock (very limited) large stones (slightly limited)	1.00 1.00 0.06	Very limited slope (very limited) depth to bedrock (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) small stones >35% (very limited)	1.00 1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
71253: Hartville-----	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 clayey (limited) too acid (limited)	1.00 0.87 0.60	Very limited wetness (very limited)	1.00	Very limited small stones >35% (very limited) wetness (limited) too clayey (limited)	1.00 0.86 0.74

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
71255: Britwater-----	Slightly limited percs slowly (slightly limited)	0.25	Moderately limited seepage (moderately limited) slope (moderately limited)	0.50 0.31	Moderately limited too clayey (moderately limited) too acid (slightly limited)	0.31 0.12	Not limited		Slightly limited too clayey (slightly limited) too acid (slightly limited) small stones (slightly limited)	0.16 0.12 0.00
71256: Townhole-----	Very limited wetness (very limited) percs slowly (limited)	1.00 0.96	Very limited wetness (very limited) seepage (very limited) slope (limited)	1.00 1.00 0.91	Limited wetness (limited) too clayey (slightly limited) too acid (slightly limited)	0.63 0.23 0.12	Limited seepage (limited) wetness (moderately limited)	0.75 0.34	Limited small stones (limited) wetness (moderately limited) too acid (slightly limited)	1.00 0.31 0.12
Aslinger-----	Very limited wetness (very limited) percs slowly (limited)	1.00 0.71	Very limited wetness (very limited) slope (limited) seepage (moderately limited)	1.00 0.91 0.50	Very limited wetness (very limited) too acid (moderately limited) too clayey (slightly limited)	1.00 0.42 0.07	Limited wetness (limited)	0.96	Moderately limited wetness (moderately limited) too acid (moderately limited) small stones (slightly limited)	0.59 0.42 0.02
71257: Townhole, karst-----	Very limited wetness (very limited) percs slowly (limited)	1.00 0.96	Very limited wetness (very limited) seepage (very limited)	1.00 1.00	Very limited wetness (very limited) seepage (limited) too clayey (moderately limited)	1.00 0.79 0.41	Limited wetness (limited)	0.86	Very limited small stones >35% (very limited) wetness (moderately limited) too clayey (slightly limited)	1.00 0.53 0.20
Aslinger, karst-----	Very limited wetness (very limited) percs slowly (limited)	1.00 0.71	Very limited wetness (very limited) seepage (moderately limited)	1.00 0.50	Limited wetness (limited) too clayey (moderately limited) too acid (slightly limited)	0.79 0.30 0.24	Limited wetness (limited)	0.60	Very limited small stones >35% (very limited) wetness (moderately limited) too acid (slightly limited)	1.00 0.40 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
71258: Maplegrove----	Very limited wetness (very limited) percs slowly (limited)	1.00 0.96	Very limited wetness (very limited)	1.00	Very limited too clayey (very limited) wetness (limited) large stones (slightly limited)	1.00 0.79 0.00	Limited wetness (limited)	0.60	Very limited too clayey (very limited) wetness (moderately limited)	1.00 0.40
Carl-----	Very limited wetness (very limited) percs slowly (very limited) flooding (rare) (moderately limited)	1.00 1.00 0.60	Very limited wetness (very limited)	1.00	Very limited wetness (very limited) too clayey (limited) flooding (rare) (moderately limited)	1.00 0.74 0.60	Very limited wetness (very limited) flooding (rare) (moderately limited)	1.00 0.60	Very limited wetness (very limited) hard to pack (limited) too clayey (moderately limited)	1.00 0.70 0.51
71752: Bearthicket---	Very limited flooding (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited flooding (very limited) seepage (moderately limited)	1.00 0.50	Very limited flooding (very limited)	1.00	Very limited flooding (very limited)	1.00	Not limited	
71753: Cedargap-----	Very limited flooding (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited flooding (very limited) seepage (moderately limited)	1.00 0.50	Very limited flooding (very limited) too clayey (slightly limited)	1.00 0.09	Very limited flooding (very limited)	1.00	Very limited small stones >35% (very limited)	1.00
Pinerun-----	Very limited flooding (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited flooding (very limited) seepage (moderately limited)	1.00 0.50	Very limited flooding (very limited) too clayey (limited)	1.00 0.76	Very limited flooding (very limited)	1.00	Very limited small stones >35% (very limited) too clayey (moderately limited)	1.00 0.55
71754: Waben-----	Not limited		Very limited seepage (very limited) slope (moderately limited)	1.00 0.31	Limited seepage (limited)	0.79	Limited seepage (limited)	0.75	Very limited small stones >35% (very limited) seepage (moderately limited)	1.00 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
71754: Cedargap-----	Very limited flooding (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited flooding (very limited) seepage (moderately limited)	1.00 0.50	Very limited flooding (very limited) too clayey (slightly limited)	1.00 0.13	Very limited flooding (very limited)	1.00	Very limited small stones >35% (very limited) too clayey (slightly limited)	1.00 0.02
71755: Cedargap-----	Very limited flooding (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited flooding (very limited) seepage (moderately limited)	1.00 0.50	Very limited flooding (very limited) too sandy (moderately limited)	1.00 0.60	Very limited flooding (very limited)	1.00	Very limited small stones >35% (very limited) too sandy (moderately limited)	1.00 0.60
Gladden-----	Very limited flooding (very limited) percs slowly (slightly limited)	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	
73116: Pomme-----	Slightly limited percs slowly (slightly limited)	0.25	Moderately limited seepage (moderately limited) slope (moderately limited)	0.50 0.31	Very limited too clayey (very limited) too acid (slightly limited)	1.00 0.18	Not limited		Very limited too clayey (very limited) small stones (limited) too acid (slightly limited)	1.00 0.99 0.18
73120: Rueter-----	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)	1.00 0.87	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 0.73
Gasconade-----	Very limited depth to bedrock (very limited) slope (very limited) large stones (moderately limited)	1.00 1.00 0.42	Very limited slope (very limited) depth to bedrock (very limited) large stones (slightly limited)	1.00 1.00 0.08	Very limited slope (very limited) depth to bedrock (very limited) too clayey (moderately limited)	1.00 1.00 0.30	Very limited depth to bedrock (very limited) slope (very limited)	1.00 1.00	Very limited depth to bedrock (very limited) slope (very limited) hard to pack (limited)	1.00 1.00 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
73120: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73349: Boskydell-----	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	Very limited small stones >35% (very limited)	1.00
	slope (very limited)	1.00	wetness (very limited)	1.00	depth to bedrock (very limited)	1.00	slope (very limited)	1.00	slope (very limited)	1.00
	percs slowly (limited)	0.93	depth to bedrock (slightly limited)	0.08	slope (very limited)	1.00			wetness (limited)	0.73
73350: Clinkenbeard--	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	Very limited depth to bedrock (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00
	percs slowly (limited)	0.74	large stones (very limited)	1.00	too clayey (limited)	0.81			small stones (limited)	0.78
	large stones (limited)	0.73	slope (limited)	0.91	large stones (slightly limited)	0.01			too clayey (limited)	0.63
Gobbler-----	Limited depth to bedrock (limited)	0.60	Limited slope (limited)	0.91	Very limited depth to bedrock (very limited)	1.00	Moderately limited depth to bedrock (moderately limited)	0.45	Very limited small stones >35% (very limited)	1.00
	percs slowly (moderately limited)	0.45	depth to bedrock (limited)	0.60	too clayey (very limited)	1.00			too clayey (very limited)	1.00
			seepage (moderately limited)	0.32					depth to bedrock (moderately limited)	0.45
73351: Sonsac-----	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
	large stones (limited)	0.73	seepage (very limited)	1.00	too clayey (limited)	0.68	seepage (limited)	0.63	small stones (limited)	0.88
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
	percs slowly (slightly limited)	0.25	seepage (moderately limited)	0.50	too acid (slightly limited)	0.30			small stones >35% (very limited)	1.00
					too clayey (slightly limited)	0.09			too acid (slightly limited)	0.30

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								
73352:										
Jollymill-----	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00	Limited depth to bedrock (limited)	0.90	Limited small stones (limited)	0.99
	depth to bedrock (limited)	0.94	slope (very limited)	1.00	too clayey (limited)	0.92	wetness (limited)	0.69	depth to bedrock (limited)	0.90
	percs slowly (limited)	0.71	depth to bedrock (limited)	0.94	wetness (limited)	0.89	slope (slightly limited)	0.04	too clayey (limited)	0.83
Bendavis-----	Very limited depth to bedrock (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited wetness (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00
	wetness (very limited)	1.00	seepage (very limited)	1.00	depth to bedrock (very limited)	1.00	wetness (limited)	0.83	small stones >35% (very limited)	1.00
	percs slowly (slightly limited)	0.25	slope (very limited)	1.00	too acid (slightly limited)	0.24	seepage (limited)	0.63	wetness (moderately limited)	0.52
73353:										
Hailey-----	Very limited slope (very limited)	1.00	Very limited seepage (very limited)	1.00						
			seepage (very limited)	1.00	seepage (limited)	0.79	seepage (very limited)	1.00	slope (very limited)	1.00
					too clayey (moderately limited)	0.55			small stones >35% (very limited)	1.00
Sonsac-----	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
	large stones (very limited)	1.00	large stones (very limited)	1.00	too clayey (limited)	0.87			large stones >35% (very limited)	1.00
73355:										
Moko-----	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 (slightly limited)	0.04	depth to bedrock (very limited)	1.00	too clayey (slightly limited)	0.15	slope (slightly limited)	0.04	small stones >35% (very limited)	1.00
	large stones (slightly limited)	0.04			slope (slightly limited)	0.04			slope (slightly limited)	0.04

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
73355:										
Blueye-----	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
	percs slowly (limited)	0.93	depth to bedrock (very limited)	1.00	too clayey (limited)	0.98	slope (slightly limited)	0.04	too clayey (limited)	0.94
	slope (slightly limited)	0.04			slope (slightly limited)	0.04			hard to pack (limited)	0.70
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73356:										
Moko-----	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
	large stones (limited)	0.61	large stones (slightly limited)	0.19					small stones (moderately limited)	0.42
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73357:										
Moko-----	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
	large stones (very limited)	1.00	large stones (slightly limited)	0.13					large stones >35% (very limited)	1.00
Boskydell----	Very limited depth to bedrock (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited wetness (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	wetness (very limited)	1.00	slope (very limited)	1.00	wetness (very limited)	1.00	slope (very limited)	1.00
	wetness (very limited)	1.00	depth to bedrock (very limited)	1.00	depth to bedrock (very limited)	1.00	slope (very limited)	1.00	wetness (limited)	0.94
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	

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
73358: Eldorado-----	Slightly limited percs slowly (slightly limited)	0.25	Limited slope (limited) seepage (moderately limited)	0.66 0.50	Very limited too clayey (very limited)	1.00	Not limited		Very limited too clayey (very limited) small stones >35% (very limited)	1.00 1.00
Moko-----	Very limited depth to bedrock (very limited) large stones (moderately limited)	1.00 0.40	Very limited depth to bedrock (very limited) large stones (limited) slope (limited)	1.00 0.79 0.66	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) small stones (limited) large stones (slightly limited)	1.00 0.68 0.12
73359: Bona-----	Limited percs slowly (limited) slope (limited) depth to bedrock (slightly limited)	0.71 0.63 0.17	Very limited slope (very limited) large stones (very limited) seepage (slightly limited)	1.00 1.00 0.18	Very limited depth to bedrock (very limited) too clayey (very limited) slope (limited)	1.00 1.00 0.63	Limited slope (limited)	0.63	Very limited too clayey (very limited) hard to pack (limited) slope (limited)	1.00 0.70 0.63
Moko-----	Very limited depth to bedrock (very limited) large stones (limited) slope (limited)	1.00 0.69 0.63	Very limited slope (very limited) depth to bedrock (very limited) large stones (very limited)	1.00 1.00 0.99	Very limited depth to bedrock (very limited) slope (limited)	1.00 0.63	Very limited depth to bedrock (very limited) slope (limited)	1.00 0.63	Very limited depth to bedrock (very limited) slope (limited) small stones (moderately limited)	1.00 0.63 0.46
74640: Hootentown----	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	
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

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								
99003: Miscellaneous water-----	Not rated									
99007: Dam-----	Not rated									
99016: Water-----	Not rated									
Riverwash-----	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	Roadfill		Sand		Gravel		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
70067: Pembroke, karst-----	Slightly limited shrink-swell (slightly limited)	0.14	Improbable		Improbable		Limited		Very limited	
			excess fines (thickest layer)	1.00	excess fines (bottom layer)	1.00	area reclaim (limited)	0.92	ponded (wetness) (very limited)	1.00
			excess fines (bottom layer)	1.00	excess fines (thickest layer)	1.00	too clayey (slightly limited)	0.27	cutbanks cave (very limited) too clayey (slightly limited)	1.00 0.15
70068: Bendavis, karst-----	Very limited depth to bedrock (very limited)	1.00	Improbable		Probable		Very limited		Very limited	
			excess fines (thickest layer)	1.00	probable source (bottom layer)	0.25	small stones (very limited)	1.00	hard bedrock <40" (very limited)	1.00
			excess fines (bottom layer)	1.00	probable source (thickest layer)	0.25	depth to bedrock (limited) too acid (moderately limited)	0.93 0.36	cutbanks cave (very limited)	1.00
Jollymill, karst-----	Limited depth to bedrock (limited) shrink-swell (slightly limited) wetness (slightly limited)	0.75 0.21 0.12	Improbable		Probable		Very limited		Very limited	
			excess fines (thickest layer)	1.00	probable source (bottom layer)	0.33	small stones (very limited)	1.00	cutbanks cave (very limited)	1.00
			excess fines (bottom layer)	1.00	probable source (thickest layer)	0.33	area reclaim (very limited) too clayey (very limited)	1.00 1.00	wetness (very limited) depth to bedrock (limited)	1.00 0.87
Crackerneck, karst-----	Slightly limited wetness (slightly limited) large stones (slightly limited)	0.05 0.02	Improbable		Improbable		Very limited		Very limited	
			excess fines (thickest layer)	1.00	excess fines (bottom layer)	1.00	small stones (very limited)	1.00	cutbanks cave (very limited)	1.00
			excess fines (bottom layer)	1.00	excess fines (thickest layer)	1.00	too acid (moderately limited) area reclaim (slightly limited)	0.54 0.08	too clayey (very limited) wetness (limited)	1.00 0.99

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
70069: Jollymill, karst-----	Very limited low strength (very limited) depth to bedrock (moderately limited) shrink-swell (slightly limited)	1.00  0.42  0.19	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Improbable excess fines (bottom layer) excess fines (thickest layer)	1.00  1.00	Very limited small stones (very limited) too clayey (very limited) area reclaim (very limited)	1.00  1.00  1.00	Very limited cutbanks cave (very limited) too clayey (very limited) wetness (very limited)	1.00  1.00  1.00
Crackerneck, karst-----	Slightly limited wetness (slightly limited)	0.05	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Improbable excess fines (bottom layer) excess fines (thickest layer)	1.00  1.00	Moderately limited too acid (moderately limited) small stones (slightly limited) wetness (slightly limited)	0.54  0.12  0.05	Very limited cutbanks cave (very limited) too clayey (very limited) wetness (limited)	1.00  1.00  0.99
70070: Crackerneck, karst-----	Moderately limited wetness (moderately limited) large stones (slightly limited)	0.58  0.04	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Probable probable source (bottom layer) probable source (thickest layer)	0.33  0.33	Very limited small stones (very limited) area reclaim (very limited) wetness (moderately limited)	1.00  1.00  0.58	Very limited wetness (very limited) cutbanks cave (very limited) too clayey (moderately limited)	1.00  1.00  0.52
Hailey, karst	Limited large stones (limited)	0.87	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Probable excess fines (bottom layer) probable source (thickest layer)	1.00  0.50	Very limited small stones (very limited) area reclaim (very limited) large surface stones (slightly limited)	1.00  1.00  0.17	Very limited cutbanks cave (very limited) large stones (limited) too clayey (moderately limited)	1.00  0.87  0.32
70071: Sowcoon-----	Very limited low strength (very limited) wetness (limited) shrink-swell (moderately limited)	1.00  0.91  0.32	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Limited area reclaim (limited) wetness (limited) dense layer (limited)	0.92  0.91  0.77	Very limited ponded (wetness) (very limited) wetness (very limited) cutbanks cave (very limited)	1.00  1.00  1.00

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
70071: Viburnum-----	Moderately limited wetness (moderately limited) shrink-swell (moderately limited)	0.48  0.45	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Limited too clayey (limited) small stones (limited) wetness (moderately limited)	0.92  0.88  0.48	Very limited wetness (very limited) cutbanks cave (very limited) too clayey (slightly limited)	1.00  1.00  0.23
70072: Rueter-----	Not limited		Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Probable probable source (bottom layer) probable source (thickest layer)	0.42  0.33	Very limited small stones (very limited) area reclaim (very limited) too acid (slightly limited)	1.00  1.00  0.06	Very limited cutbanks cave (very limited) too clayey (slightly limited) slope (slightly limited)	1.00  0.10  0.04
Pomme-----	Slightly limited shrink-swell (slightly limited)	0.20	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Probable excess fines (thickest layer) probable source (bottom layer)	1.00  0.33	Very limited area reclaim (very limited) small stones (slightly limited) slope (slightly limited)	1.00  0.12  0.04	Very limited cutbanks cave (very limited) too clayey (limited) slope (slightly limited)	1.00  0.87  0.04
70073: Beemont-----	Very limited low strength (very limited) shrink-swell (very limited) depth to bedrock (moderately limited)	1.00  1.00  0.48	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Very limited too clayey (very limited) large surface stones (very limited) large stones (limited)	1.00  1.00  0.99	Very limited cutbanks cave (very limited) too clayey (very limited) slope (limited)	1.00  1.00  0.84
70074: Townhole-----	Slightly limited wetness (slightly limited) shrink-swell (slightly limited)	0.21  0.14	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Possible excess fines (bottom layer) excess fines (thickest layer)	1.00  0.75	Very limited small stones (very limited) area reclaim (very limited) too clayey (limited)	1.00  1.00  0.62	Very limited wetness (very limited) cutbanks cave (very limited) too clayey (moderately limited)	1.00  1.00  0.42

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
70075: Waben-----	Not limited		Improbable excess fines (thickest layer)	1.00	Possible excess fines (thickest layer)	0.94	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
			excess fines (bottom layer)	1.00	excess fines (bottom layer)	0.75	area reclaim (very limited) too clayey (slightly limited)	1.00 0.01		
70076: Clarksville---	Moderately limited large stones (moderately limited)	0.45	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (thickest layer)	1.00	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	shrink-swell (slightly limited)	0.18	excess fines (bottom layer)	1.00	excess fines (bottom layer)	1.00	too clayey (very limited) large stones >25% (very limited)	1.00 1.00 1.00	too clayey (moderately limited) large stones (moderately limited)	0.47 0.45
Noark-----	Limited low strength (limited)	0.78	Improbable excess fines (thickest layer)	1.00	Possible excess fines (bottom layer)	1.00	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	large stones (moderately limited)	0.31	excess fines (bottom layer)	1.00	small stones (thickest layer)	0.83	too clayey (very limited) area reclaim (very limited)	1.00 1.00 1.00	too clayey (very limited) large stones (moderately limited)	1.00 0.31
70077: Flagspring---	Very limited low strength (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (bottom layer)	1.00	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	shrink-swell (moderately limited)	0.45	excess fines (bottom layer)	1.00	excess fines (thickest layer)	1.00	too clayey (moderately limited) too acid (slightly limited)	0.34 0.30	too clayey (very limited) slope (slightly limited)	1.00 0.04
70078: Goss-----	Slightly limited shrink-swell (slightly limited)	0.07	Improbable excess fines (thickest layer)	1.00	Probable 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	probable source (thickest layer)	0.38	slope (limited) area reclaim (limited)	0.96 0.92	too clayey (very limited) slope (limited)	1.00 0.96

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
70078:										
Rueter-----	Slightly limited shrink-swell (slightly limited)	0.22	Improbable excess fines (thickest layer)	1.00	Probable excess fines (bottom layer)	1.00	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	large stones (slightly limited)	0.14	excess fines (bottom layer)	1.00	large stones (thickest layer)	0.50	too clayey (very limited)	1.00	too clayey (very limited)	1.00
							area reclaim (very limited)	1.00	slope (limited)	0.96
70079:										
Viburnum-----	Limited wetness (limited)	0.71	Improbable excess fines (thickest layer)	1.00	Probable excess fines (thickest layer)	1.00	Very limited area reclaim (very limited)	1.00	Very limited wetness (very limited)	1.00
	shrink-swell (moderately limited)	0.45	excess fines (bottom layer)	1.00	probable source (bottom layer)	0.42	too clayey (limited)	0.96	cutbanks cave (very limited)	1.00
							wetness (limited)	0.71	too clayey (slightly limited)	0.26
Crackerneck---	Moderately limited wetness (moderately limited)	0.58	Improbable excess fines (thickest layer)	1.00	Probable excess fines (bottom layer)	0.75	Very limited small stones (very limited)	1.00	Very limited wetness (very limited)	1.00
	shrink-swell (slightly limited)	0.22	excess fines (bottom layer)	1.00	probable source (thickest layer)	0.33	area reclaim (very limited)	1.00	cutbanks cave (very limited)	1.00
							wetness (moderately limited)	0.58	too clayey (very limited)	1.00
70080:										
Noark-----	Moderately limited large stones (moderately limited)	0.35	Improbable excess fines (thickest layer)	1.00	Probable small stones (thickest layer)	0.66	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	shrink-swell (slightly limited)	0.27	excess fines (bottom layer)	1.00	probable source (bottom layer)	0.50	area reclaim (very limited)	1.00	too clayey (very limited)	1.00
							too clayey (very limited)	1.00	large stones (moderately limited)	0.35
Clarksville---	Moderately limited large stones (moderately limited)	0.33	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (thickest layer)	1.00	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	shrink-swell (slightly limited)	0.18	excess fines (bottom layer)	1.00	excess fines (bottom layer)	1.00	too clayey (very limited)	1.00	too clayey (moderately limited)	0.47
							area reclaim (very limited)	1.00	large stones (moderately limited)	0.33

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
70080: Crackerneck, karst-----	Very limited low strength (very limited) wetness (limited) shrink-swell (slightly limited)	1.00  0.86  0.17	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Possible excess fines (bottom layer) small stones (thickest layer)	1.00  0.83	Very limited too clayey (very limited) small stones (limited) wetness (limited)	1.00  0.88  0.86	Very limited wetness (very limited) cutbanks cave (very limited) too clayey (limited)	1.00  1.00  0.95
70081: Rueter-----	Limited slope (limited) shrink-swell (slightly limited)	0.92  0.05	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Probable probable source (bottom layer) probable source (thickest layer)	0.42  0.33	Very limited slope (very limited) small stones (very limited) area reclaim (very limited)	1.00  1.00  1.00	Very limited slope (very limited) cutbanks cave (very limited) too clayey (very limited)	1.00  1.00  1.00
Goss-----	Limited slope (limited) shrink-swell (slightly limited)	0.92  0.30	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Probable probable source (bottom layer) probable source (thickest layer)	0.42  0.42	Very limited slope (very limited) small stones (very limited) too clayey (very limited)	1.00  1.00  1.00	Very limited slope (very limited) cutbanks cave (very limited) too clayey (very limited)	1.00  1.00  1.00
Jollymill----	Limited slope (limited) depth to bedrock (limited) shrink-swell (slightly limited)	0.92  0.66  0.14	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Improbable excess fines (bottom layer) excess fines (thickest layer)	1.00  1.00	Very limited slope (very limited) small stones (very limited) too clayey (very limited)	1.00  1.00  1.00	Very limited slope (very limited) cutbanks cave (very limited) too clayey (very limited)	1.00  1.00  1.00
70082: Paintbrush----	Limited wetness (limited) shrink-swell (moderately limited)	0.64  0.37	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00  1.00	Very limited area reclaim (very limited) too clayey (limited) wetness (limited)	1.00  0.70  0.64	Very limited wetness (very limited) cutbanks cave (very limited) too clayey (moderately limited)	1.00  1.00  0.41

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
70082: Friendly-----	Limited wetness (limited) shrink-swell (limited)	0.98 0.72	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable excess fines (thickest layer) probable source (bottom layer)	1.00 0.50	Very limited too clayey (very limited) area reclaim (very limited) wetness (limited)	1.00 1.00 0.98	Very limited wetness (very limited) cutbanks cave (very limited) too clayey (moderately limited)	1.00 1.00 0.50
70083: Eldorado-----	Moderately limited shrink-swell (moderately limited)	0.45	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable excess fines (thickest layer) probable source (bottom layer)	1.00 0.42	Very limited small stones (very limited) area reclaim (very limited) too clayey (limited)	1.00 1.00 0.65	Very limited cutbanks cave (very limited) too clayey (moderately limited)	1.00 0.59
70150: Moko-----	Very limited slope (very limited) depth to bedrock (very limited) large stones (slightly limited)	1.00 1.00 0.04	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited depth to bedrock (very limited) slope (very limited) small stones (very limited)	1.00 1.00 1.00	Very limited hard bedrock <40" (very limited) slope (very limited) large stones (slightly limited)	1.00 1.00 0.04
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
71253: Hartville-----	Very limited shrink-swell (very limited) wetness (limited)	1.00 0.98	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable excess fines (thickest layer) probable source (bottom layer)	1.00 0.33	Very limited area reclaim (very limited) too clayey (very limited) small stones (very limited)	1.00 1.00 1.00	Very limited wetness (very limited) cutbanks cave (very limited) too clayey (limited)	1.00 1.00 0.74
71255: Britwater-----	Slightly limited shrink-swell (slightly limited)	0.27	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable excess fines (thickest layer) probable source (bottom layer)	1.00 0.42	Limited small stones (limited) too clayey (slightly limited) too acid (slightly limited)	0.88 0.24 0.12	Very limited cutbanks cave (very limited) too clayey (slightly limited)	1.00 0.16

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
71256: Townhole-----	Slightly limited shrink-swell (slightly limited)	0.15	Improbable excess fines (thickest layer)	1.00	Possible excess fines (bottom layer)	1.00	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	wetness (slightly limited)	0.00	excess fines (bottom layer)	1.00	excess fines (thickest layer)	0.75	area reclaim (very limited)	1.00	wetness (limited)	0.97
							too acid (moderately limited)	0.42	too clayey (slightly limited)	0.09
Aslinger-----	Limited wetness (limited)	0.82	Improbable excess fines (thickest layer)	1.00	Probable excess fines (thickest layer)	1.00	Limited wetness (limited)	0.82	Very limited wetness (very limited)	1.00
			excess fines (bottom layer)	1.00	probable source (bottom layer)	0.30	area reclaim (moderately limited)	0.32	cutbanks cave (very limited)	1.00
							too clayey (slightly limited)	0.08		
71257: Townhole, karst-----	Limited wetness (limited)	0.64	Improbable excess fines (thickest layer)	1.00	Probable probable source (bottom layer)	0.33	Very limited small stones (very limited)	1.00	Very limited wetness (very limited)	1.00
	shrink-swell (slightly limited)	0.08	excess fines (bottom layer)	1.00	probable source (thickest layer)	0.33	area reclaim (very limited)	1.00	cutbanks cave (very limited)	1.00
							wetness (limited)	0.64	too clayey (slightly limited)	0.20
Aslinger, karst-----	Slightly limited wetness (slightly limited)	0.12	Improbable excess fines (thickest layer)	1.00	Probable probable source (thickest layer)	0.33	Very limited area reclaim (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
			excess fines (bottom layer)	1.00	probable source (bottom layer)	0.33	small stones (limited)	0.88	wetness (very limited)	1.00
							wetness (slightly limited)	0.12	too clayey (slightly limited)	0.15
71258: Maplegrove----	Very limited low strength (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (thickest layer)	1.00	Very limited too clayey (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	shrink-swell (moderately limited)	0.43	excess fines (bottom layer)	1.00	excess fines (bottom layer)	1.00	area reclaim (very limited)	1.00	too clayey (very limited)	1.00
	wetness (slightly limited)	0.12					dense layer (limited)	0.93	wetness (very limited)	1.00

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
71258: Carl-----	Very limited shrink-swell (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (thickest 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 (bottom layer)	1.00	too clayey (very limited)	1.00	cutbanks cave (very limited)	1.00
	wetness (very limited)	1.00							too clayey (moderately limited)	0.51
71752: Bearthicket---	Very limited low strength (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Probable excess fines (thickest layer)	1.00	Slightly limited too clayey (slightly limited)	0.09	Very limited cutbanks cave (very limited)	1.00
			excess fines (bottom layer)	1.00	probable source (bottom layer)	0.33			flooding (moderately limited)	0.60
71753: Cedargap-----	Not limited		Improbable excess fines (thickest layer)	1.00	Probable probable source (bottom layer)	0.33	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
			excess fines (bottom layer)	1.00	probable source (thickest layer)	0.27	area reclaim (very limited)	1.00	flooding (moderately limited)	0.60
							too clayey (moderately limited)	0.45		
Pinerun-----	Not limited		Improbable excess fines (thickest layer)	1.00	Probable probable source (thickest layer)	0.33	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
			excess fines (bottom layer)	1.00	probable source (bottom layer)	0.25	area reclaim (very limited)	1.00	flooding (moderately limited)	0.60
							too clayey (limited)	0.67	too clayey (moderately limited)	0.55
71754: Waben-----	Not limited		Improbable excess fines (thickest layer)	1.00	Probable probable source (bottom layer)	0.25	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
			excess fines (bottom layer)	1.00	probable source (thickest layer)	0.17	area reclaim (very limited)	1.00		
							too clayey (slightly limited)	0.22		

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
71754: Cedargap-----	Not limited		Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable probable source (thickest layer) probable source (bottom layer)	0.33 0.25	Very limited small stones (very limited) area reclaim (very limited) too clayey (moderately limited)	1.00 1.00 0.53	Very limited cutbanks cave (very limited) flooding (moderately limited) too clayey (slightly limited)	1.00 0.60 0.02
71755: Cedargap-----	Not limited		Probable excess fines (thickest layer) probable source (bottom layer)	1.00 0.33	Probable probable source (thickest layer) probable source (bottom layer)	0.33 0.25	Very limited small stones (very limited) area reclaim (very limited)	1.00 1.00	Very limited cutbanks cave (very limited) flooding (moderately limited)	1.00 0.60
Gladden-----	Not limited		Probable excess fines (thickest layer) probable source (bottom layer)	1.00 0.09	Probable excess fines (thickest layer) probable source (bottom layer)	1.00 0.25	Very limited area reclaim (very limited) dense layer (slightly limited)	1.00 0.00	Very limited cutbanks cave (very limited) flooding (moderately limited) dense layer (slightly limited)	1.00 0.60 0.00
73116: Pomme-----	Slightly limited shrink-swell (slightly limited)	0.29	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable excess fines (thickest layer) probable source (bottom layer)	0.75 0.42	Very limited small stones (very limited) area reclaim (very limited) too clayey (limited)	1.00 1.00 0.77	Very limited cutbanks cave (very limited) too clayey (very limited)	1.00 1.00
73120: Rueter-----	Very limited slope (very limited)	1.00	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable excess fines (bottom layer) probable source (thickest layer)	1.00 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) cutbanks cave (very limited) too clayey (limited)	1.00 1.00 0.73

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
73120: Gasconade-----	Very limited slope (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (thickest layer)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited hard bedrock <40" (very limited)	1.00
	depth to bedrock (very limited)	1.00	excess fines (bottom layer)	1.00	excess fines (bottom layer)	1.00	slope (very limited)	1.00	slope (very limited)	1.00
	low strength (very limited)	1.00					small stones (very limited)	1.00	large stones (moderately limited)	0.42
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73349: Boskydell-----	Very limited shrink-swell (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Probable probable source (bottom layer)	0.45	Very limited small stones (very limited)	1.00	Very limited wetness (very limited)	1.00
	wetness (limited)	0.93	excess fines (bottom layer)	1.00	probable source (thickest layer)	0.45	area reclaim (very limited)	1.00	cutbanks cave (very limited)	1.00
	slope (slightly limited)	0.08					too clayey (very limited)	1.00	slope (very limited)	1.00
73350: Clinkenbeard--	Very limited depth to bedrock (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (bottom layer)	1.00	Very limited small stones (very limited)	1.00	Very limited hard bedrock <40" (very limited)	1.00
	shrink-swell (very limited)	1.00	excess fines (bottom layer)	1.00	excess fines (thickest layer)	1.00	too clayey (very limited)	1.00	large stones (limited)	0.73
	large stones (limited)	0.73					large stones >25% (very limited)	1.00	too clayey (limited)	0.63
Gobbler-----	Moderately limited depth to bedrock (moderately limited)	0.45	Improbable excess fines (bottom layer)	1.00	Probable probable source (bottom layer)	0.50	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	shrink-swell (slightly limited)	0.26	excess fines (thickest layer)	1.00	probable source (thickest layer)	0.32	area reclaim (very limited)	1.00	too clayey (very limited)	1.00
							large stones >25% (very limited)	1.00	depth to bedrock (limited)	0.60
73351: Sonsac-----	Very limited depth to bedrock (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Probable probable source (thickest layer)	0.50	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	probable source (bottom layer)	0.47	slope (very limited)	1.00	slope (very limited)	1.00
	large stones (limited)	0.73					small stones (very limited)	1.00	large stones (limited)	0.73

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
73351: Rueter-----	Limited slope (limited) shrink-swell (slightly limited)	0.92 0.07	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable probable source (thickest layer) probable source (bottom layer)	0.33 0.32	Very limited slope (very limited) small stones (very limited) area reclaim (very limited)	1.00 1.00 1.00	Very limited slope (very limited) cutbanks cave (very limited)	1.00 1.00
73352: Jollymill-----	Limited depth to bedrock (limited) wetness (slightly limited) large stones (slightly limited)	0.90 0.26 0.02	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable excess fines (bottom layer) probable source (thickest layer)	0.75 0.42	Very limited small stones (very limited) area reclaim (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.42	Very limited wetness (very limited) cutbanks cave (very limited) depth to bedrock (limited)	1.00 1.00 0.94
Bendavis-----	Very limited depth to bedrock (very limited) wetness (moderately limited) large stones (slightly limited)	1.00 0.58 0.01	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable probable source (thickest layer) probable source (bottom layer)	0.32 0.30	Very limited small stones (very limited) depth to bedrock (limited) wetness (moderately limited)	1.00 0.83 0.58	Very limited hard bedrock <40" (very limited) wetness (very limited) cutbanks cave (very limited)	1.00 1.00 1.00
73353: Hailey-----	Very limited slope (very limited)	1.00	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Probable excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	0.60 0.50 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) cutbanks cave (very limited) too clayey (slightly limited)	1.00 1.00 0.27
Sonsac-----	Very limited slope (very limited) depth to bedrock (very limited) large stones (very limited)	1.00 1.00 1.00	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited depth to bedrock (very limited) slope (very limited) small stones (very limited)	1.00 1.00 1.00	Very limited hard bedrock <40" (very limited) slope (very limited) large stones (very limited)	1.00 1.00 1.00

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
73355:										
Moko-----	Very limited depth to bedrock (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Probable probable source (bottom layer)	0.50	Very limited depth to bedrock (very limited)	1.00	Very limited hard bedrock <40" (very limited)	1.00
	large stones (slightly limited)	0.04	excess fines (bottom layer)	1.00	probable source (thickest layer)	0.50	small stones (very limited)	1.00	slope (slightly limited)	0.04
							large stones (limited)	0.80	large stones (slightly limited)	0.04
Blueye-----	Very limited depth to bedrock (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (bottom layer)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited hard bedrock <40" (very limited)	1.00
	shrink-swell (very limited)	1.00	excess fines (bottom layer)	1.00	excess fines (thickest layer)	1.00	too clayey (very limited)	1.00	too clayey (limited)	0.94
	low strength (very limited)	1.00					slope (slightly limited)	0.04	cutbanks cave (slightly limited)	0.29
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73356:										
Moko-----	Very limited depth to bedrock (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Probable 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 (very limited)	1.00	excess fines (bottom layer)	1.00	probable source (bottom layer)	0.33	slope (very limited)	1.00	slope (very limited)	1.00
	large stones (limited)	0.61					small stones (very limited)	1.00	large stones (limited)	0.61
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73357:										
Moko-----	Very limited slope (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (bottom layer)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited 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	slope (very limited)	1.00	slope (very limited)	1.00
	low strength (very limited)	1.00					large stones >25% (very limited)	1.00	large stones (very limited)	1.00

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
73357:										
Boskydell-----	Very limited slope (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (bottom layer)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited slope (very limited)	1.00
	low strength (very limited)	1.00	excess fines (bottom layer)	1.00	excess fines (thickest layer)	1.00	slope (very limited)	1.00	wetness (very limited)	1.00
	depth to bedrock (very limited)	1.00					too clayey (very limited)	1.00	large stones (limited)	0.92
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73358:										
Eldorado-----	Moderately limited shrink-swell (moderately limited)	0.45	Improbable excess fines (thickest layer)	1.00	Possible 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)	0.75	area reclaim (very limited)	1.00	too clayey (very limited)	1.00
							too clayey (limited)	0.65		
Moko-----	Very limited depth to bedrock (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable small stones (thickest layer)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited hard bedrock <40" (very limited)	1.00
	large stones (moderately limited)	0.40	excess fines (bottom layer)	1.00	small stones (bottom layer)	1.00	small stones (very limited)	1.00	large stones (moderately limited)	0.40
					excess fines (bottom layer)	1.00				
73359:										
Bona-----	Very limited low strength (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable excess fines (bottom layer)	1.00	Very limited small stones (very limited)	1.00	Very limited cutbanks cave (very limited)	1.00
	shrink-swell (limited)	0.76	excess fines (bottom layer)	1.00	excess fines (thickest layer)	1.00	too clayey (very limited)	1.00	too clayey (very limited)	1.00
	large stones (slightly limited)	0.13					large stones >25% (very limited)	1.00	slope (limited)	0.63
Moko-----	Very limited depth to bedrock (very limited)	1.00	Improbable excess fines (thickest layer)	1.00	Improbable small stones (thickest layer)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited hard bedrock <40" (very limited)	1.00
	large stones (limited)	0.69	excess fines (bottom layer)	1.00	small stones (bottom layer)	1.00	small stones (very limited)	1.00	large stones (limited)	0.69
					excess fines (bottom layer)	1.00	slope (limited)	0.63	slope (limited)	0.63

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

Map symbol and soil name	Roadfill		Sand		Gravel		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
74640: Hootentown----	Slightly limited low strength (slightly limited) shrink-swell (slightly limited)	0.22 0.07	Improbable excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Not limited		Slightly limited cutbanks cave (slightly limited)	0.29
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99007: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99016: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Riverwash----	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
70067: Pembroke, karst-----	Moderately limited seepage (moderately limited)	0.50	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Moderately limited erodes easily (moderately limited)	0.60
	depth to bedrock (slightly limited)	0.08			erodes easily (moderately limited)	0.60	erodes easily (moderately limited)	0.60	depth to bedrock (slightly limited)	0.08
70068: Bendavis, karst-----	Limited seepage (limited)	0.92	Slightly limited depth to bedrock (slightly limited)	0.27	Limited droughty (limited)	0.94	Very limited depth to bedrock (very limited)	1.00	Limited droughty (limited)	0.94
	depth to bedrock (limited)	0.84			depth to bedrock (slightly limited)	0.27			depth to bedrock (limited)	0.84
Jollymill, karst-----	Limited depth to bedrock (limited)	0.67	Limited large stones (limited)	0.99	Moderately limited erodes easily (moderately limited)	0.60	Limited large stones (limited)	0.85	Limited large stones (limited)	0.85
			percs slowly (slightly limited)	0.26	droughty (moderately limited)	0.54	depth to bedrock (limited)	0.75	depth to bedrock (limited)	0.67
					percs slowly (slightly limited)	0.26	erodes easily (moderately limited)	0.60	erodes easily (moderately limited)	0.60
Crackerneck, karst-----	Very limited seepage (very limited)	1.00	Very limited large stones (very limited)	1.00	Limited droughty (limited)	0.66	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
	depth to bedrock (slightly limited)	0.10	percs slowly (slightly limited)	0.26	percs slowly (slightly limited)	0.26	wetness (slightly limited)	0.19	droughty (limited)	0.66
					large stones (slightly limited)	0.02		wetness (slightly limited)	0.19	

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
70069: Jollymill, karst-----	Moderately limited depth to bedrock (moderately limited)	0.52	Very limited large stones (very limited)	1.00	Limited droughty (limited)	0.83	Limited large stones (limited)	0.87	Limited large stones (limited)	0.87
	seepage (moderately limited)	0.50	slope (moderately limited)	0.40	slope (moderately limited)	0.40	depth to bedrock (moderately limited)	0.42	droughty (limited)	0.83
	slope (slightly limited)	0.10	percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	wetness (slightly limited)	0.28	depth to bedrock (moderately limited)	0.52
Crackerneck, karst-----	Moderately limited seepage (moderately limited)	0.50	Limited slope (limited)	0.78	Limited slope (limited)	0.78	Moderately limited large stones (moderately limited)	0.37	Moderately limited large stones (moderately limited)	0.37
	slope (slightly limited)	0.20	large stones (moderately limited)	0.51	percs slowly (slightly limited)	0.26	slope (slightly limited)	0.20	slope (slightly limited)	0.20
			percs slowly (slightly limited)	0.26			wetness (slightly limited)	0.19	wetness (slightly limited)	0.19
70070: Crackerneck, karst-----	Limited slope (limited)	0.70	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
	seepage (moderately limited)	0.50	large stones (slightly limited)	0.30	droughty (limited)	0.80	slope (limited)	0.70	droughty (limited)	0.80
	depth to bedrock (slightly limited)	0.10	percs slowly (slightly limited)	0.26	percs slowly (slightly limited)	0.26	wetness (moderately limited)	0.48	slope (limited)	0.70
Hailey, karst	Very limited seepage (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
	slope (limited)	0.70	large stones (very limited)	1.00	droughty (very limited)	1.00	slope (limited)	0.70	droughty (very limited)	1.00
			large surface stones (slightly limited)	0.17	large stones (limited)	0.87	large surface stones (slightly limited)	0.17	slope (limited)	0.70

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
70071:										
Sowcoon-----	Moderately limited seepage (moderately limited)	0.50	Very limited ponded (wetness) (very limited) percs slowly (moderately limited)	1.00 0.40	Very limited ponded (wetness) (very limited) erodes easily (moderately limited) percs slowly (moderately limited)	1.00 0.60 0.40	Very limited ponded (wetness) (very limited) wetness (limited) erodes easily (moderately limited)	1.00 0.68 0.60	Limited wetness (limited) erodes easily (moderately limited)	0.68 0.60
Viburnum-----	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 0.44	Moderately limited erodes easily (moderately limited) wetness (moderately limited)	0.60 0.44
70072:										
Rueter-----	Very limited seepage (very limited) slope (limited)	1.00 0.70	Very limited slope (very limited)	1.00	Very limited slope (very limited) droughty (moderately limited)	1.00 0.34	Limited slope (limited)	0.70	Limited slope (limited) droughty (moderately limited)	0.70 0.34
Pomme-----	Limited slope (limited) seepage (moderately limited)	0.70 0.50	Very limited slope (very limited)	1.00	Very limited slope (very limited) erodes easily (moderately limited)	1.00 0.60	Limited slope (limited) erodes easily (moderately limited)	0.70 0.60	Limited slope (limited) erodes easily (moderately limited)	0.70 0.60
70073:										
Beemont-----	Very limited slope (very limited) depth to bedrock (moderately limited)	1.00 0.58	Very limited large surface stones (very limited) slope (very limited) percs slowly (moderately limited)	1.00 1.00 0.48	Very limited large surface stones (very limited) slope (very limited) percs slowly (moderately limited)	1.00 1.00 0.48	Very limited large surface stones (very limited) slope (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.48	Very limited large surface stones (very limited) slope (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.58
70074:										
Townhole-----	Moderately limited seepage (moderately limited)	0.50	Slightly limited large stones (slightly limited) percs slowly (slightly limited) slope (slightly limited)	0.30 0.26 0.10	Slightly limited percs slowly (slightly limited) slope (slightly limited)	0.26 0.10	Moderately limited wetness (moderately limited) large stones (slightly limited)	0.34 0.02	Moderately limited wetness (moderately limited) large stones (slightly limited)	0.34 0.02

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
70075: Waben-----	Very limited seepage (very limited) slope (moderately limited)	1.00 0.30	Limited slope (limited) large stones (moderately limited)	0.98 0.51	Limited slope (limited)	0.98	Limited large stones (limited) slope (moderately limited)	0.74 0.30	Limited large stones (limited) slope (moderately limited)	0.74 0.30
70076: Clarksville---	Very limited seepage (very limited) slope (limited)	1.00 0.70	Very limited slope (very limited) large stones (moderately limited)	1.00 0.51	Very limited slope (very limited) large stones (moderately limited) droughty (slightly limited)	1.00 0.45 0.28	Very limited large stones (very limited) slope (limited)	1.00 0.70	Very limited large stones (very limited) slope (limited) droughty (slightly limited)	1.00 0.70 0.28
Noark-----	Very limited seepage (very limited) slope (limited)	1.00 0.70	Very limited slope (very limited) large stones (very limited)	1.00 1.00	Very limited slope (very limited) droughty (limited) large stones (moderately limited)	1.00 0.96 0.31	Very limited large stones (very limited) slope (limited)	1.00 0.70	Very limited large stones (very limited) droughty (limited) slope (limited)	1.00 0.96 0.70
70077: Flagspring---	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) percs slowly (slightly limited)	1.00 0.13	Limited slope (limited)	0.70	Limited slope (limited)	0.70
70078: Goss-----	Very limited seepage (very limited) slope (very limited)	1.00 1.00	Very limited slope (very limited)	1.00	Very limited slope (very limited) droughty (limited)	1.00 0.81	Very limited slope (very limited) large stones (slightly limited)	1.00 0.19	Very limited slope (very limited) droughty (limited) large stones (slightly limited)	1.00 0.81 0.19

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
70078:										
Rueter-----	Very limited seepage (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 droughty (very limited)	1.00
	slope (very limited)	1.00	large stones (limited)	0.75	droughty (very limited)	1.00	large stones (very limited)	1.00	slope (very limited)	1.00
					large stones (slightly limited)	0.14			large stones (very limited)	1.00
70079:										
Viburnum-----	Moderately limited seepage (moderately limited)	0.50	Slightly limited large stones (slightly limited)	0.30	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60
			percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	wetness (moderately limited)	0.53	wetness (moderately limited)	0.53
Crackerneck---	Moderately limited seepage (moderately limited)	0.50	Slightly limited percs slowly (slightly limited)	0.26	Limited droughty (limited)	0.60	Moderately limited wetness (moderately limited)	0.48	Limited droughty (limited)	0.60
					percs slowly (slightly limited)	0.26			wetness (moderately limited)	0.48
70080:										
Noark-----	Very limited seepage (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
	slope (limited)	0.70	large stones (very limited)	1.00	droughty (limited)	0.95	slope (limited)	0.70	droughty (limited)	0.95
					large stones (moderately limited)	0.35			slope (limited)	0.70
Clarksville---	Very limited seepage (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
	slope (limited)	0.70	large stones (moderately limited)	0.51	droughty (moderately limited)	0.39	slope (limited)	0.70	slope (limited)	0.70
					large stones (moderately limited)	0.33			droughty (moderately limited)	0.39

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
70080: Crackerneck, karst-----	Moderately limited seepage (moderately limited)	0.50	Very limited large stones (very limited)	1.00	Limited slope (limited)	0.98	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
	slope (moderately limited)	0.30	slope (limited)	0.98	percs slowly (slightly limited)	0.26	wetness (moderately limited)	0.60	wetness (moderately limited)	0.60
			percs slowly (slightly limited)	0.26	droughty (slightly limited)	0.17	slope (moderately limited)	0.30	slope (moderately limited)	0.30
70081: 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
	seepage (very limited)	1.00			droughty (very limited)	0.99			droughty (very limited)	0.99
Goss-----	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
	seepage (moderately limited)	0.50			droughty (moderately limited)	0.44	large stones (slightly limited)	0.28	droughty (moderately limited)	0.44
									large stones (slightly limited)	0.28
Jollymill----	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
	depth to bedrock (limited)	0.65	large stones (slightly limited)	0.30	percs slowly (slightly limited)	0.13	depth to bedrock (limited)	0.66	depth to bedrock (limited)	0.65
	seepage (moderately limited)	0.50	percs slowly (slightly limited)	0.13	droughty (slightly limited)	0.00	wetness (slightly limited)	0.19	wetness (slightly limited)	0.19
70082: Paintbrush----	Moderately limited seepage (moderately limited)	0.50	Moderately limited percs slowly (moderately limited)	0.39	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60
					percs slowly (moderately limited)	0.39	wetness (moderately limited)	0.50	wetness (moderately limited)	0.50
Friendly-----	Moderately limited seepage (moderately limited)	0.50	Moderately limited percs slowly (moderately limited)	0.39	Moderately limited erodes easily (moderately limited)	0.60	Limited wetness (limited)	0.86	Limited wetness (limited)	0.86
					percs slowly (moderately limited)	0.39	erodes easily (moderately limited)	0.60	erodes easily (moderately limited)	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
70083: Eldorado-----	Moderately limited seepage (moderately limited) slope (slightly limited)	0.50 0.20	Limited large stones (limited) slope (limited)	0.99 0.78	Limited slope (limited) droughty (slightly limited)	0.78 0.02	Slightly limited slope (slightly limited) large stones (slightly limited)	0.20 0.00	Slightly limited slope (slightly limited) droughty (slightly limited) large stones (slightly limited)	0.20 0.02 0.00
70150: Moko-----	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 (limited)	1.00 1.00 0.75	Very limited shallow to bedrock (very limited) slope (very limited) droughty (very limited)	1.00 1.00 1.00	Very limited slope (very limited) depth to bedrock (very limited) large stones (very limited)	1.00 1.00 1.00	Very limited bedrock <20 in. (very limited) slope (very limited) droughty (very limited)	1.00 1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
71253: Hartville-----	Not limited		Moderately limited percs slowly (moderately limited)	0.39	Moderately limited percs slowly (moderately limited)	0.39	Limited wetness (limited)	0.86	Limited wetness (limited)	0.86
71255: Britwater-----	Moderately limited seepage (moderately limited) slope (slightly limited)	0.50 0.10	Moderately limited slope (moderately limited)	0.40	Moderately limited slope (moderately limited)	0.40	Slightly limited slope (slightly limited)	0.10	Slightly limited slope (slightly limited)	0.10
71256: Townhole-----	Very limited seepage (very limited) slope (moderately limited)	1.00 0.30	Limited slope (limited) percs slowly (moderately limited)	0.98 0.57	Limited slope (limited) erodes easily (moderately limited) percs slowly (moderately limited)	0.98 0.60 0.57	Moderately limited erodes easily (moderately limited) slope (moderately limited) wetness (slightly limited)	0.60 0.30 0.04	Moderately limited erodes easily (moderately limited) slope (moderately limited) wetness (slightly limited)	0.60 0.30 0.04

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
71256: Aslinger-----	Moderately limited seepage (moderately limited)	0.50	Limited slope (limited)	0.98	Limited slope (limited)	0.98	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60
	slope (moderately limited)	0.30	percs slowly (slightly limited)	0.13	erodes easily (moderately limited)	0.60	wetness (moderately limited)	0.58	wetness (moderately limited)	0.58
					percs slowly (slightly limited)	0.13	slope (moderately limited)	0.30	slope (moderately limited)	0.30
71257: Townhole, karst-----	Very limited seepage (very limited)	1.00	Moderately limited percs slowly (moderately limited)	0.57	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60
			large stones (slightly limited)	0.30	percs slowly (moderately limited)	0.57	wetness (moderately limited)	0.50	wetness (moderately limited)	0.50
Aslinger, karst-----	Moderately limited seepage (moderately limited)	0.50	Slightly limited percs slowly (slightly limited)	0.13	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60
					percs slowly (slightly limited)	0.13	wetness (slightly limited)	0.28	wetness (slightly limited)	0.28
71258: Maplegrove----	Not limited		Slightly limited large stones (slightly limited)	0.30	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60
			percs slowly (slightly limited)	0.13	percs slowly (slightly limited)	0.13	wetness (slightly limited)	0.28	wetness (slightly limited)	0.28
							large stones (slightly limited)	0.02	large stones (slightly limited)	0.02
Carl-----	Not limited		Very limited percs slowly (very limited)	1.00	Very limited percs slowly (very limited)	1.00	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00
					slow intake (moderately limited)	0.60				
71752: Bearthicket---	Moderately limited seepage (moderately limited)	0.50	Moderately limited flooding (moderately limited)	0.60	Moderately limited flooding (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60	Moderately limited erodes easily (moderately limited)	0.60
					erodes easily (moderately limited)	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
71753: Cedargap-----	Moderately limited seepage (moderately limited)	0.50	Limited flooding (limited)	0.90	Very limited droughty (very limited) flooding (limited) slow intake (moderately limited)	1.00 0.90 0.24	Not limited		Very limited droughty (very limited)	1.00
Pinerun-----	Moderately limited seepage (moderately limited)	0.50	Moderately limited flooding (moderately limited) large stones (slightly limited)	0.60 0.30	Moderately limited flooding (moderately limited) erodes easily (moderately limited) droughty (slightly limited)	0.60 0.60 0.01	Moderately limited erodes easily (moderately limited) large stones (slightly limited)	0.60 0.01	Moderately limited erodes easily (moderately limited) large stones (slightly limited) droughty (slightly limited)	0.60 0.01 0.01
71754: Waben-----	Very limited seepage (very limited) slope (slightly limited)	1.00 0.10	Moderately limited slope (moderately limited)	0.40	Limited droughty (limited) slope (moderately limited)	0.92 0.40	Slightly limited slope (slightly limited)	0.10	Limited droughty (limited) slope (slightly limited)	0.92 0.10
Cedargap-----	Moderately limited seepage (moderately limited)	0.50	Moderately limited flooding (moderately limited)	0.60	Very limited droughty (very limited) flooding (moderately limited) slow intake (moderately limited)	1.00 0.60 0.60	Not limited		Very limited droughty (very limited)	1.00
71755: Cedargap-----	Moderately limited seepage (moderately limited)	0.50	Limited flooding (limited)	0.90	Very limited droughty (very limited) flooding (limited)	1.00 0.90	Moderately limited too sandy (moderately limited)	0.60	Very limited droughty (very limited)	1.00
Gladden-----	Very limited seepage (very limited)	1.00	Moderately limited flooding (moderately limited)	0.60	Moderately limited flooding (moderately limited)	0.60	Not limited		Not limited	

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
73116: Pomme-----	Moderately limited seepage (moderately limited) slope (slightly limited)	0.50 0.10	Moderately limited slope (moderately limited)	0.40	Moderately limited slope (moderately limited)	0.40	Slightly limited slope (slightly limited)	0.10	Slightly limited slope (slightly limited)	0.10
73120: Rueter-----	Very limited slope (very limited) seepage (very limited)	1.00 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
Gasconade----	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 (very limited)	1.00 1.00 1.00	Very limited shallow to bedrock (very limited) droughty (very limited) slope (very limited)	1.00 1.00 1.00	Very limited slope (very limited) depth to bedrock (very limited) large stones (very limited)	1.00 1.00 1.00	Very limited large stones (very limited) bedrock <20 in. (very limited) slope (very limited)	1.00 1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73349: Boskydell----	Very limited slope (very limited) depth to bedrock (slightly limited)	1.00 0.08	Very limited slope (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited slope (very limited) droughty (limited) slow intake (moderately limited)	1.00 0.74 0.60	Very limited slope (very limited) wetness (limited)	1.00 0.73	Very limited slope (very limited) droughty (limited) wetness (limited)	1.00 0.74 0.73
73350: Clinkenbeard--	Limited depth to bedrock (limited) slope (moderately limited)	0.81 0.30	Very limited large stones (very limited) slope (limited) depth to bedrock (slightly limited)	1.00 0.98 0.21	Very limited droughty (very limited) slope (limited) large stones (limited)	1.00 0.98 0.73	Very limited depth to bedrock (very limited) large stones (very limited) slope (moderately limited)	1.00 1.00 0.30	Very limited droughty (very limited) large stones (very limited) depth to bedrock (limited)	1.00 1.00 0.81

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								
73350:										
Gobbler-----	Moderately limited		Limited		Limited		Limited		Limited	
	depth to bedrock	0.55	slope	0.98	slope	0.98	large stones	0.93	large stones	0.93
	(moderately limited)		(limited)		(limited)		(limited)		(limited)	
	seepage	0.32	large stones	0.79	droughty	0.49	depth to bedrock	0.45	depth to bedrock	0.55
	(moderately limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	slope	0.30					slope	0.30	droughty	0.49
	(moderately limited)						(moderately limited)		(moderately limited)	
73351:										
Sonsac-----	Very limited									
	slope	1.00								
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	seepage	1.00	large stones	1.00	droughty	1.00	depth to bedrock	1.00	droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	depth to bedrock	0.88	depth to bedrock	0.42	large stones	0.73	large stones	1.00	large stones	1.00
	(limited)		(moderately limited)		(limited)		(very limited)		(very limited)	
Rueter-----	Very limited									
	slope	1.00								
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	seepage	0.50	large stones	0.24	droughty	0.98	large stones	0.19	droughty	0.98
	(moderately limited)		(slightly limited)		(limited)		(slightly limited)		(limited)	
									large stones	0.19
									(slightly limited)	
73352:										
Jollymill----	Limited		Very limited		Very limited		Very limited		Very limited	
	depth to bedrock	0.70	slope	1.00	slope	1.00	large stones	1.00	large stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	slope	0.70	percs slowly	0.13	percs slowly	0.13	depth to bedrock	0.90	depth to bedrock	0.70
	(limited)		(slightly limited)		(slightly limited)		(limited)		(limited)	
	seepage	0.50			large stones	0.02	slope	0.70	slope	0.70
	(moderately limited)				(slightly limited)		(limited)		(limited)	
Bendavis-----	Very limited									
	seepage	1.00	slope	1.00	slope	1.00	depth to bedrock	1.00	large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	depth to bedrock	0.81	large stones	0.60	droughty	1.00	large stones	1.00	droughty	1.00
	(limited)		(moderately limited)		(very limited)		(very limited)		(very limited)	
	slope	0.70	depth to bedrock	0.21	depth to bedrock	0.21	slope	0.70	depth to bedrock	0.81
	(limited)		(slightly limited)		(slightly limited)		(limited)		(limited)	

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
73353:										
Hailey-----	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
	seepage (very limited)	1.00			droughty (slightly limited)	0.20			droughty (slightly limited)	0.20
Sonsac-----	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 large stones (very limited)	1.00
	depth to bedrock (limited)	0.91	large stones (very limited)	1.00	droughty (very limited)	1.00	depth to bedrock (very limited)	1.00	slope (very limited)	1.00
	seepage (moderately limited)	0.50	depth to bedrock (moderately limited)	0.53	large stones (very limited)	1.00	large stones (very limited)	1.00	droughty (very limited)	1.00
73355:										
Moko-----	Very limited bedrock <20 in. (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited bedrock <20 in. (very limited)	1.00
	slope (limited)	0.70	shallow to bedrock (very limited)	1.00	droughty (very limited)	1.00	large stones (very limited)	1.00	droughty (very limited)	1.00
			large stones (limited)	0.75	slope (very limited)	1.00	slope (limited)	0.70	large stones (very limited)	1.00
Blueye-----	Limited depth to bedrock (limited)	0.92	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00	Limited depth to bedrock (limited)	0.92
	slope (limited)	0.70	depth to bedrock (moderately limited)	0.58	depth to bedrock (moderately limited)	0.58	slope (limited)	0.70	slope (limited)	0.70
			percs slowly (moderately limited)	0.39	percs slowly (moderately limited)	0.39	large surface stones (slightly limited)	0.03	droughty (slightly limited)	0.11
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73356:										
Moko-----	Very limited bedrock <20 in. (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited large stones (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	bedrock <20 in. (very limited)	1.00
			large surface stones (very limited)	1.00	slope (very limited)	1.00	large stones (very limited)	1.00	slope (very limited)	1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	

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
73357:										
Moko-----	Very limited bedrock <20 in. (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited large stones (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	bedrock <20 in. (very limited)	1.00
			large stones (very limited)	1.00	slope (very limited)	1.00	large stones (very limited)	1.00	slope (very limited)	1.00
Boskydell----	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
	depth to bedrock (limited)	0.94	large stones (very limited)	1.00	droughty (very limited)	1.00	depth to bedrock (very limited)	1.00	large stones (very limited)	1.00
			depth to bedrock (limited)	0.66	large stones (limited)	0.92	large stones (very limited)	1.00	droughty (very limited)	1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73358:										
Eldorado-----	Moderately limited seepage (moderately limited)	0.50	Limited slope (limited)	0.78	Limited slope (limited)	0.78	Slightly limited slope (slightly limited)	0.20	Slightly limited slope (slightly limited)	0.20
	slope (slightly limited)	0.20	large stones (limited)	0.75	droughty (slightly limited)	0.00			droughty (slightly limited)	0.00
Moko-----	Very limited bedrock <20 in. (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 large stones (very limited)	1.00
	slope (slightly limited)	0.20	large stones (very limited)	1.00	droughty (very limited)	1.00	large stones (very limited)	1.00	bedrock <20 in. (very limited)	1.00
			slope (limited)	0.78	slope (limited)	0.78	slope (slightly limited)	0.20	droughty (very limited)	1.00
73359:										
Bona-----	Limited slope (limited)	0.99	Very limited slope (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited large stones (very limited)	1.00	Very limited large stones (very limited)	1.00
	seepage (slightly limited)	0.18	percs slowly (slightly limited)	0.13	droughty (limited)	0.75	slope (limited)	0.99	slope (limited)	0.99
	depth to bedrock (slightly limited)	0.17			large stones (slightly limited)	0.13			droughty (limited)	0.75

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
73359:										
Moko-----	Very limited bedrock <20 in. (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited bedrock <20 in. (very limited)	1.00
	slope (limited)	0.99	shallow to bedrock (very limited)	1.00	droughty (very limited)	1.00	large stones (very limited)	1.00	droughty (very limited)	1.00
			large stones (very limited)	1.00	slope (very limited)	1.00	slope (limited)	0.99	large stones (very limited)	1.00
74640:										
Hootentown----	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
99000:										
Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003:										
Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99007:										
Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99016:										
Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Riverwash-----	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
70067: Pembroke, karst-----	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited ponded (wetness) (very limited)	1.00	Very limited percs slowly (very limited) ponded (wetness) (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
70068: Bendavis, karst-----	Limited droughty (limited) too acid (moderately limited) depth to bedrock (slightly limited)	0.94 0.48 0.27	Limited droughty (limited) too acid (moderately limited) depth to bedrock (slightly limited)	0.94 0.48 0.27	Limited droughty (limited) too acid (moderately limited) depth to bedrock (slightly limited)	0.94 0.48 0.27	Very limited depth to bedrock (very limited) too acid (moderately limited)	1.00 0.48	Very limited depth to bedrock (very limited) percs slowly (limited) too acid (slightly limited)	1.00 0.78 0.01
Jollymill, karst-----	Limited percs slowly (limited) droughty (moderately limited) wetness (slightly limited)	0.60 0.54 0.28	Limited percs slowly (limited) droughty (moderately limited) wetness (slightly limited)	0.60 0.54 0.28	Limited percs slowly (limited) droughty (moderately limited) wetness (slightly limited)	0.60 0.54 0.28	Limited depth to bedrock (limited) percs slowly (limited) wetness (slightly limited)	0.75 0.60 0.28	Very limited percs slowly (very limited) depth to bedrock (very limited) wetness (very limited)	1.00 1.00 1.00
Crackerneck, karst-----	Limited droughty (limited) percs slowly (limited) too acid (slightly limited)	0.66 0.60 0.24	Limited droughty (limited) percs slowly (limited) too acid (slightly limited)	0.66 0.60 0.24	Limited droughty (limited) percs slowly (limited) too acid (slightly limited)	0.66 0.60 0.24	Limited percs slowly (limited) too acid (slightly limited) wetness (slightly limited)	0.60 0.24 0.19	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
70069: Jollymill, karst-----	Very limited poor filter (very limited) droughty (limited) too acid (moderately limited)	1.00  0.83  0.48	Very limited poor filter (very limited) droughty (limited) too acid (moderately limited)	1.00  0.83  0.48	Very limited poor filter (very limited) droughty (limited) too acid (moderately limited)	1.00  0.83  0.48	Very limited poor filter (very limited) too acid (moderately limited) depth to bedrock (moderately limited)	1.00  0.48  0.42	Very limited percs slowly (very limited) depth to bedrock (very limited) wetness (very limited)	1.00  1.00  1.00
Crackerneck, karst-----	Limited percs slowly (limited) wetness (slightly limited)	0.60  0.19	Limited percs slowly (limited) wetness (slightly limited)	0.60  0.19	Limited percs slowly (limited) slope (slightly limited) wetness (slightly limited)	0.60  0.20  0.19	Limited percs slowly (limited) slope (slightly limited) wetness (slightly limited)	0.60  0.20  0.19	Very limited percs slowly (very limited) wetness (very limited) slope (limited)	1.00  1.00  0.66
70070: Crackerneck, karst-----	Limited droughty (limited) percs slowly (limited) wetness (moderately limited)	0.80  0.60  0.48	Limited droughty (limited) percs slowly (limited) wetness (moderately limited)	0.80  0.60  0.48	Limited droughty (limited) slope (limited) percs slowly (limited)	0.80  0.70  0.60	Limited slope (limited) percs slowly (limited) wetness (moderately limited)	0.70  0.60  0.48	Very limited percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00  1.00  1.00
Hailey, karst	Very limited droughty (very limited) poor filter (very limited) slope (moderately limited)	1.00  1.00  0.45	Very limited droughty (very limited) poor filter (very limited) slope (moderately limited)	1.00  1.00  0.45	Very limited droughty (very limited) poor filter (very limited) slope (limited)	1.00  1.00  0.70	Very limited poor filter (very limited) slope (limited) too acid (slightly limited)	1.00  0.70  0.18	Very limited slope (very limited) too cobbly (very limited) large surface stones (slightly limited)	1.00  1.00  0.17
70071: Sowcoon-----	Very limited ponded (wetness) (very limited) wetness (limited) too acid (slightly limited)	1.00  0.68  0.06	Very limited ponded (wetness) (very limited) wetness (limited) too acid (slightly limited)	1.00  0.68  0.06	Very limited ponded (wetness) (very limited) wetness (limited) too acid (slightly limited)	1.00  0.68  0.06	Very limited ponded (wetness) (very limited) wetness (limited) too acid (slightly limited)	1.00  0.68  0.06	Very limited percs slowly (very limited) ponded (wetness) (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
70071: Viburnum-----	Limited percs slowly (limited) wetness (moderately limited)	0.60  0.44	Limited percs slowly (limited) wetness (moderately limited)	0.60  0.44	Limited percs slowly (limited) wetness (moderately limited)	0.60  0.44	Limited percs slowly (limited) wetness (moderately limited)	0.60  0.44	Very limited percs slowly (very limited) wetness (very limited) too acid (slightly limited)	1.00  1.00  0.07
70072: Rueter-----	Moderately limited slope (moderately limited) droughty (moderately limited)	0.45  0.34	Moderately limited slope (moderately limited) droughty (moderately limited)	0.45  0.34	Limited slope (limited) droughty (moderately limited)	0.70  0.34	Limited slope (limited)	0.70	Very limited slope (very limited) percs slowly (moderately limited)	1.00  0.32
Pomme-----	Moderately limited slope (moderately limited)	0.45	Moderately limited slope (moderately limited)	0.45	Limited slope (limited)	0.70	Limited slope (limited)	0.70	Very limited percs slowly (very limited) slope (very limited)	1.00  1.00
70073: Beemont-----	Very limited percs slowly (very limited) large surface stones (very limited) slope (limited)	1.00  1.00  0.83	Very limited percs slowly (very limited) large surface stones (very limited) slope (limited)	1.00  1.00  0.83	Very limited percs slowly (very limited) large surface stones (very limited) slope (very limited)	1.00  1.00  1.00	Very limited percs slowly (very limited) large surface stones (very limited) slope (very limited)	1.00  1.00  1.00	Very limited percs slowly (very limited) depth to bedrock (very limited) large surface stones (very limited)	1.00  1.00  1.00
70074: Townhole-----	Limited percs slowly (limited) wetness (moderately limited)	0.60  0.34	Limited percs slowly (limited) wetness (moderately limited)	0.60  0.34	Limited percs slowly (limited) wetness (moderately limited)	0.60  0.34	Limited percs slowly (limited) wetness (moderately limited)	0.60  0.34	Very limited percs slowly (very limited) wetness (very limited) too cobbly (moderately limited)	1.00  1.00  0.33
70075: Waben-----	Not limited		Not limited		Moderately limited slope (moderately limited)	0.30	Moderately limited slope (moderately limited)	0.30	Limited slope (limited) percs slowly (moderately limited)	0.91  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
70076:										
Clarksville---	Limited large stones (limited) slope (moderately limited) too acid (slightly limited)	0.86 0.45 0.30	Limited large stones (limited) slope (moderately limited) too acid (slightly limited)	0.86 0.45 0.30	Limited large stones (limited) slope (limited) too acid (slightly limited)	0.86 0.70 0.30	Limited large stones (limited) slope (limited) too acid (slightly limited)	0.86 0.70 0.30	Very limited slope (very limited) percs slowly (limited) too cobbly (moderately limited)	1.00 0.73 0.45
Noark-----	Limited droughty (limited) slope (moderately limited) too acid (slightly limited)	0.96 0.45 0.24	Limited droughty (limited) slope (moderately limited) too acid (slightly limited)	0.96 0.45 0.24	Limited droughty (limited) slope (limited) too acid (slightly limited)	0.96 0.70 0.24	Limited slope (limited) too acid (slightly limited)	0.70 0.24	Very limited slope (very limited) too cobbly (very limited) percs slowly (limited)	1.00 1.00 0.73
70077:										
Flagspring----	Moderately limited too acid (moderately limited) slope (moderately limited)	0.54 0.45	Moderately limited too acid (moderately limited) slope (moderately limited)	0.54 0.45	Limited slope (limited) too acid (moderately limited)	0.70 0.54	Limited slope (limited) too acid (moderately limited)	0.70 0.54	Very limited percs slowly (very limited) slope (very limited) too acid (slightly limited)	1.00 1.00 0.21
70078:										
Goss-----	Limited slope (limited) droughty (limited)	0.91 0.81	Limited slope (limited) droughty (limited)	0.91 0.81	Very limited slope (very limited) droughty (limited)	1.00 0.81	Very limited slope (very limited)	1.00	Very limited slope (very limited) percs slowly (moderately limited)	1.00 0.32
Rueter-----	Very limited droughty (very limited) slope (limited)	1.00 0.91	Very limited droughty (very limited) slope (limited)	1.00 0.91	Very limited droughty (very limited) slope (very limited)	1.00 1.00	Very limited slope (very limited)	1.00	Very limited slope (very limited) too stony (very limited) percs slowly (limited)	1.00 1.00 0.73

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
70079:										
Viburnum-----	Moderately limited wetness (moderately limited)	0.53	Moderately limited wetness (moderately limited)	0.53	Moderately limited wetness (moderately limited)	0.53	Moderately limited wetness (moderately limited)	0.53	Very limited percs slowly (very limited) wetness (very limited) too acid (slightly limited)	1.00 1.00 0.21
Crackerneck---	Limited droughty (limited) percs slowly (limited) wetness (moderately limited)	0.60 0.60 0.48	Limited droughty (limited) percs slowly (limited) wetness (moderately limited)	0.60 0.60 0.48	Limited droughty (limited) percs slowly (limited) wetness (moderately limited)	0.60 0.60 0.48	Limited percs slowly (limited) wetness (moderately limited) too acid (slightly limited)	0.60 0.48 0.06	Very limited percs slowly (very limited) wetness (very limited) too acid (moderately limited)	1.00 1.00 0.42
70080:										
Noark-----	Limited droughty (limited) slope (moderately limited) too acid (slightly limited)	0.95 0.45 0.24	Limited droughty (limited) slope (moderately limited) too acid (slightly limited)	0.95 0.45 0.24	Limited droughty (limited) slope (limited) too acid (slightly limited)	0.95 0.70 0.24	Limited slope (limited) too acid (slightly limited)	0.70 0.24	Very limited slope (very limited) too cobbly (limited) percs slowly (limited)	1.00 0.98 0.73
Clarksville---	Moderately limited slope (moderately limited) droughty (moderately limited) too acid (slightly limited)	0.45 0.39 0.30	Moderately limited slope (moderately limited) droughty (moderately limited) too acid (slightly limited)	0.45 0.39 0.30	Limited slope (limited) droughty (moderately limited) too acid (slightly limited)	0.70 0.39 0.30	Limited slope (limited) too acid (slightly limited) large stones (slightly limited)	0.70 0.30 0.00	Very limited slope (very limited) percs slowly (limited) too cobbly (moderately limited)	1.00 0.73 0.33
Crackerneck, karst-----	Limited percs slowly (limited) wetness (moderately limited) too acid (moderately limited)	0.60 0.60 0.36	Limited percs slowly (limited) wetness (moderately limited) too acid (moderately limited)	0.60 0.60 0.36	Limited percs slowly (limited) wetness (moderately limited) too acid (moderately limited)	0.60 0.60 0.36	Limited percs slowly (limited) wetness (moderately limited) too acid (moderately limited)	0.60 0.60 0.36	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	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70081:										
Rueter-----	Very limited slope (very limited) droughty (very limited) too acid (slightly limited)	1.00 0.99 0.30	Very limited slope (very limited) droughty (very limited) too acid (slightly limited)	1.00 0.99 0.30	Very limited slope (very limited) droughty (very limited) too acid (slightly limited)	1.00 0.99 0.30	Very limited slope (very limited) too acid (slightly limited)	1.00 0.30	Very limited slope (very limited) percs slowly (moderately limited) too acid (slightly limited)	1.00 0.32 0.01
Goss-----	Very limited slope (very limited) droughty (moderately limited) large stones (slightly limited)	1.00 0.44 0.15	Very limited slope (very limited) droughty (moderately limited) large stones (slightly limited)	1.00 0.44 0.15	Very limited slope (very limited) droughty (moderately limited) large stones (slightly limited)	1.00 0.44 0.15	Very limited slope (very limited) large stones (slightly limited)	1.00 0.15	Very limited slope (very limited) percs slowly (moderately limited)	1.00 0.32
Jollymill----	Very limited slope (very limited) wetness (slightly limited) too acid (slightly limited)	1.00 0.19 0.18	Very limited slope (very limited) wetness (slightly limited) too acid (slightly limited)	1.00 0.19 0.18	Very limited slope (very limited) wetness (slightly limited) too acid (slightly limited)	1.00 0.19 0.18	Very limited slope (very limited) depth to bedrock (limited) wetness (slightly limited)	1.00 0.66 0.19	Very limited percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
70082:										
Paintbrush----	Moderately limited wetness (moderately limited)	0.50	Moderately limited wetness (moderately limited)	0.50	Moderately limited wetness (moderately limited)	0.50	Moderately limited wetness (moderately limited)	0.50	Very limited percs slowly (very limited) wetness (very limited) too acid (slightly limited)	1.00 1.00 0.03
Friendly-----	Limited wetness (limited)	0.86	Limited wetness (limited)	0.86	Limited wetness (limited)	0.86	Limited wetness (limited)	0.86	Very limited percs slowly (very limited) wetness (very limited)	1.00 1.00
70083:										
Eldorado-----	Slightly limited droughty (slightly limited)	0.02	Slightly limited droughty (slightly limited)	0.02	Slightly limited slope (slightly limited) droughty (slightly limited)	0.20 0.02	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
70150:										
Moko-----	Very limited slope (very limited)	1.00	Very limited shallow to bedrock (very limited)	1.00	Very limited slope (very limited)	1.00	Very limited depth to bedrock (very limited)	1.00	Very limited percs slowly (very limited)	1.00
	shallow to bedrock (very limited)	1.00	slope (very limited)	1.00	shallow to bedrock (very limited)	1.00	slope (very limited)	1.00	slope (very limited)	1.00
	droughty (very limited)	1.00	droughty (very limited)	1.00	droughty (very limited)	1.00	large stones (slightly limited)	0.15	depth to bedrock (very limited)	1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
71253:										
Hartville-----	Limited percs slowly (limited)	0.99	Limited percs slowly (limited)	0.99	Limited percs slowly (limited)	0.99	Limited percs slowly (limited)	0.99	Very limited percs slowly (very limited)	1.00
	wetness (limited)	0.86	wetness (limited)	0.86	wetness (limited)	0.86	wetness (limited)	0.86	wetness (very limited)	1.00
									too acid (slightly limited)	0.21
71255:										
Britwater-----	Slightly limited too acid (slightly limited)	0.24	Slightly limited too acid (slightly limited)	0.24	Slightly limited too acid (slightly limited)	0.24	Slightly limited too acid (slightly limited)	0.24	Very limited percs slowly (very limited)	1.00
					slope (slightly limited)	0.10	slope (slightly limited)	0.10	slope (moderately limited)	0.31
71256:										
Townhole-----	Limited percs slowly (limited)	0.99	Limited percs slowly (limited)	0.99	Limited percs slowly (limited)	0.99	Limited percs slowly (limited)	0.99	Very limited percs slowly (very limited)	1.00
	wetness (slightly limited)	0.04	wetness (slightly limited)	0.04	slope (moderately limited)	0.30	slope (moderately limited)	0.30	wetness (very limited)	1.00
					wetness (slightly limited)	0.04	wetness (slightly limited)	0.04	slope (limited)	0.91
Aslinger-----	Moderately limited wetness (moderately limited)	0.58	Moderately limited wetness (moderately limited)	0.58	Moderately limited wetness (moderately limited)	0.58	Moderately limited wetness (moderately limited)	0.58	Very limited percs slowly (very limited)	1.00
					slope (moderately limited)	0.30	slope (moderately limited)	0.30	wetness (very limited)	1.00
									slope (limited)	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	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71257: Townhole, karst-----	Limited percs slowly (limited)	0.99	Limited percs slowly (limited)	0.99	Limited percs slowly (limited)	0.99	Limited percs slowly (limited)	0.99	Very limited percs slowly (very limited)	1.00
	wetness (moderately limited)	0.50	wetness (moderately limited)	0.50	wetness (moderately limited)	0.50	wetness (moderately limited)	0.50	wetness (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		
Aslinger, karst-----	Slightly limited wetness (slightly limited)	0.28	Slightly limited wetness (slightly limited)	0.28	Slightly limited wetness (slightly limited)	0.28	Slightly limited wetness (slightly limited)	0.28	Very limited percs slowly (very limited)	1.00
									wetness (very limited)	1.00
71258: Maplegrove----	Limited percs slowly (limited)	0.60	Limited percs slowly (limited)	0.60	Limited percs slowly (limited)	0.60	Limited percs slowly (limited)	0.60	Very limited percs slowly (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
									too stony (slightly limited)	0.05
Carl-----	Very limited wetness (very limited)	1.00	Very limited wetness (very limited)	1.00	Very limited percs slowly (very limited)	1.00	Very limited percs slowly (very limited)	1.00	Very limited percs slowly (very limited)	1.00
	percs slowly (very limited)	1.00	percs slowly (very limited)	1.00	wetness (very limited)	1.00	wetness (very limited)	1.00	wetness (very limited)	1.00
	flooding (slightly limited)	0.30	flooding (slightly limited)	0.30	flooding (slightly limited)	0.30	flooding (slightly limited)	0.30		
71752: Bearthicket---	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)	1.00
									flooding (moderately limited)	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	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71753:										
Cedargap-----	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 percs slowly (very limited)	1.00
	droughty (very limited)	1.00	droughty (very limited)	1.00	droughty (very limited)	1.00			flooding (very limited)	1.00
Pinerun-----	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)	1.00
	droughty (slightly limited)	0.01	droughty (slightly limited)	0.01	droughty (slightly limited)	0.01			flooding (moderately limited)	0.60
71754:										
Waben-----	Limited droughty (limited)	0.92	Limited droughty (limited)	0.92	Limited droughty (limited)	0.92	Slightly limited slope (slightly limited)	0.10	Slightly limited percs slowly (moderately limited)	0.32
							slope (slightly limited)	0.10	slope (moderately limited)	0.31
Cedargap-----	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Very limited droughty (very limited)	1.00	Limited flooding (limited)	0.90	Very limited percs slowly (very limited)	1.00
	flooding (limited)	0.90	flooding (limited)	0.90	flooding (limited)	0.90			flooding (moderately limited)	0.60
71755:										
Cedargap-----	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 percs slowly (very limited)	1.00
	droughty (very limited)	1.00	droughty (very limited)	1.00	droughty (very limited)	1.00			flooding (very limited)	1.00
Gladden-----	Very limited poor filter (very limited)	1.00	Very limited poor filter (very limited)	1.00	Very limited poor filter (very limited)	1.00	Very limited poor filter (very limited)	1.00	Very limited 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
73116:										
Pomme-----	Not limited		Not limited		Slightly limited slope (slightly limited)	0.10	Slightly limited slope (slightly limited)	0.10	Very limited percs slowly (very limited)	1.00
									slope (moderately limited)	0.31

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
73120:										
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) percs slowly (moderately limited)	1.00 0.32
Gasconade-----	Very limited slope (very limited) shallow to bedrock (very limited) droughty (very limited)	1.00 1.00 1.00	Very limited droughty (very limited) shallow to bedrock (very limited) slope (very limited)	1.00 1.00 1.00	Very limited droughty (very limited) slope (very limited) shallow to bedrock (very limited)	1.00 1.00 1.00	Very limited depth to bedrock (very limited) slope (very limited)	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	
73349:										
Boskydell-----	Limited slope (limited) droughty (limited) wetness (limited)	0.99 0.74 0.73	Limited slope (limited) droughty (limited) wetness (limited)	0.99 0.74 0.73	Very limited slope (very limited) droughty (limited) wetness (limited)	1.00 0.74 0.73	Very limited slope (very limited) wetness (limited)	1.00 0.73	Very limited percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
73350:										
Clinkenbeard--	Very limited droughty (very limited) large stones (limited) depth to bedrock (slightly limited)	1.00 0.94 0.21	Very limited droughty (very limited) large stones (limited) depth to bedrock (slightly limited)	1.00 0.94 0.21	Very limited droughty (very limited) large stones (limited) slope (moderately limited)	1.00 0.94 0.30	Very limited depth to bedrock (very limited) large stones (limited) slope (moderately limited)	1.00 0.94 0.30	Very limited depth to bedrock (very limited) too stony (limited) slope (limited)	1.00 0.97 0.91
Gobbler-----	Moderately limited large stones (moderately limited) droughty (moderately limited)	0.60 0.49	Moderately limited large stones (moderately limited) droughty (moderately limited)	0.60 0.49	Moderately limited large stones (moderately limited) droughty (moderately limited) slope (moderately limited)	0.60 0.49 0.30	Moderately limited large stones (moderately limited) depth to bedrock (moderately limited) slope (moderately limited)	0.60 0.45 0.30	Very limited percs slowly (very limited) depth to bedrock (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	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73351:										
Sonsac-----	Very limited slope (very limited) droughty (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.42	Very limited slope (very limited) droughty (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.42	Very limited slope (very limited) droughty (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.42	Very limited depth to bedrock (very limited) slope (very limited)	1.00 1.00	Very limited slope (very limited) depth to bedrock (very limited) too cobbly (very limited)	1.00 1.00 1.00
Rueter-----	Very limited slope (very limited) droughty (limited)	1.00 0.98	Very limited slope (very limited) droughty (limited)	1.00 0.98	Very limited slope (very limited) droughty (limited)	1.00 0.98	Very limited slope (very limited)	1.00	Very limited percs slowly (very limited) slope (very limited)	1.00 1.00
73352:										
Jollymill----	Moderately limited slope (moderately limited) wetness (moderately limited) droughty (slightly limited)	0.45 0.36 0.00	Moderately limited slope (moderately limited) wetness (moderately limited) droughty (slightly limited)	0.45 0.36 0.00	Limited slope (limited) wetness (moderately limited) droughty (slightly limited)	0.70 0.36 0.00	Limited depth to bedrock (limited) slope (limited) wetness (moderately limited)	0.90 0.70 0.36	Very limited percs slowly (very limited) depth to bedrock (very limited) wetness (very limited)	1.00 1.00 1.00
Bendavis-----	Very limited droughty (very limited) wetness (moderately limited) slope (moderately limited)	1.00 0.48 0.45	Very limited droughty (very limited) wetness (moderately limited) slope (moderately limited)	1.00 0.48 0.45	Very limited droughty (very limited) slope (limited) wetness (moderately limited)	1.00 0.70 0.48	Very limited depth to bedrock (very limited) slope (limited) wetness (moderately limited)	1.00 0.70 0.48	Very limited depth to bedrock (very limited) wetness (very limited) slope (very limited)	1.00 1.00 1.00
73353:										
Hailey-----	Very limited slope (very limited) poor filter (very limited) droughty (slightly limited)	1.00 1.00 0.20	Very limited slope (very limited) poor filter (very limited) droughty (slightly limited)	1.00 1.00 0.20	Very limited slope (very limited) poor filter (very limited) droughty (slightly limited)	1.00 1.00 0.20	Very limited slope (very limited) poor filter (very limited)	1.00 1.00	Very limited slope (very limited) too cobbly (slightly limited)	1.00 0.24

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
73353:										
Sonsac-----	Very limited slope (very limited) droughty (very limited) large stones >35% (very limited)	1.00 1.00 1.00	Very limited slope (very limited) droughty (very limited) large stones >35% (very limited)	1.00 1.00 1.00	Very limited slope (very limited) droughty (very limited) large stones >35% (very limited)	1.00 1.00 1.00	Very limited depth to bedrock (very limited) slope (very limited) large stones >35% (very limited)	1.00 1.00 1.00	Very limited slope (very limited) depth to bedrock (very limited) too stony (very limited)	1.00 1.00 1.00
73355:										
Moko-----	Very limited shallow to bedrock (very limited) droughty (very limited)	1.00 1.00	Very limited droughty (very limited) shallow to bedrock (very limited)	1.00 1.00	Very limited droughty (very limited) shallow to bedrock (very limited)	1.00 1.00	Very limited depth to bedrock (very limited) slope (limited)	1.00 0.70	Very limited slope (very limited) depth to bedrock (very limited)	1.00 1.00
Blueye-----	Moderately limited depth to bedrock (moderately limited) slope (moderately limited) droughty (slightly limited)	0.58 0.45 0.11	Moderately limited depth to bedrock (moderately limited) slope (moderately limited) droughty (slightly limited)	0.58 0.45 0.11	Limited slope (limited) depth to bedrock (moderately limited) droughty (slightly limited)	0.70 0.58 0.11	Very limited depth to bedrock (very limited) slope (limited) large surface stones (slightly limited)	1.00 0.70 0.03	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	
73356:										
Moko-----	Very limited shallow to bedrock (very limited) droughty (very limited) slope (very limited)	1.00 1.00 1.00	Very limited droughty (very limited) shallow to bedrock (very limited) large surface stones (very limited)	1.00 1.00 1.00	Very limited droughty (very limited) shallow to bedrock (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
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
73357:										
Moko-----	Very limited slope (very limited) shallow to bedrock (very limited)	1.00 1.00	Very limited droughty (very limited) shallow to bedrock (very limited)	1.00 1.00	Very limited droughty (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 slope (very limited) depth to bedrock (very limited)	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
73357:										
Boskydell-----	Very limited slope (very limited) droughty (very limited) wetness (limited)	1.00 1.00 0.94	Very limited slope (very limited) droughty (very limited) wetness (limited)	1.00 1.00 0.94	Very limited slope (very limited) droughty (very limited) wetness (limited)	1.00 1.00 0.94	Very limited depth to bedrock (very limited) slope (very limited) wetness (limited)	1.00 1.00 0.94	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	
73358:										
Eldorado-----	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	Very limited percs slowly (very limited) slope (limited)	1.00 0.66
Moko-----	Very limited shallow to bedrock (very limited) droughty (very limited)	1.00 1.00	Very limited droughty (very limited) shallow to bedrock (very limited)	1.00 1.00	Very limited droughty (very limited) shallow to bedrock (very limited) slope (slightly limited)	1.00 1.00 0.20	Very limited depth to bedrock (very limited) slope (slightly limited)	1.00 0.20	Very limited percs slowly (very limited) depth to bedrock (very limited) too cobbly (limited)	1.00 1.00 0.92
73359:										
Bona-----	Limited slope (limited) droughty (limited) large stones (moderately limited)	0.76 0.75 0.60	Limited slope (limited) droughty (limited) large stones (moderately limited)	0.76 0.75 0.60	Limited slope (limited) droughty (limited) large stones (moderately limited)	0.99 0.75 0.60	Limited slope (limited) large stones (moderately limited)	0.99 0.60	Very limited percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
Moko-----	Very limited shallow to bedrock (very limited) droughty (very limited) slope (limited)	1.00 1.00 0.76	Very limited droughty (very limited) shallow to bedrock (very limited) slope (limited)	1.00 1.00 0.76	Very limited droughty (very limited) shallow to bedrock (very limited) slope (limited)	1.00 1.00 0.99	Very limited depth to bedrock (very limited) slope (limited)	1.00 0.99	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
74640: Hootentown----	Slightly limited flooding (slightly limited)	0.30	Slightly limited flooding (slightly limited)	0.30	Slightly limited flooding (slightly limited)	0.30	Slightly limited flooding (slightly limited)	0.30	Very limited percs slowly (very limited)	1.00
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99007: Dam-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99016: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Riverwash----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 17.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated. For an explanation of the abbreviations in the USDA texture column, see "Texture, soil" in the Glossary)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In											
70067: Pembroke, karst	0-8	SIL	CL-ML, ML, CL, SC-SM	A-6, A-4, A-7-6	0	0	100	95-100	90-100	70-90	25-45	7-15
	8-15	SIL	CL-ML, SC-SM, CL	A-6, A-4	0	0	100	95-100	90-100	70-90	25-40	7-20
	15-28	SIL, SICL	CL	A-4, A-7-6, A-6	0	0	95-100	90-100	85-100	65-95	30-45	10-25
	28-69	GR-SICL, SIC, C	CH, CL, GC	A-7-6, A-6	0	0	60-100	55-100	50-95	45-90	40-65	20-40
	69-80	UWB	---	---	---	---	---	---	---	---	---	---
70068: Bendavis, karst	0-4	GR-SIL	ML, CL-ML, GC-GM, CL	A-4	0-10	0-25	55-90	50-80	45-70	40-65	20-35	4-10
	4-31	STV-SIL, CBV-SIL, GRX-L, GRX-SIL, GRX-SICL	GC-GM, GP-GC, GC	A-2-6, A-1-a, A-6	0-60	0-30	20-65	15-60	15-50	10-50	20-40	6-20
	31-80	UWB	---	---	---	---	---	---	---	---	---	---
Jollymill, karst	0-3	SIL	ML, CL-ML	A-4	0	0-5	80-95	75-90	70-90	60-80	20-40	2-10
	3-9	GR-SIL, GRV-SIL	GC-GM, GM, CL	A-2-4, A-4	0	0-5	50-80	45-65	40-60	35-55	15-30	2-10
	9-19	GRV-SICL, GRX-SIL, GRX-SICL	CL, GC, GP-GC	A-7-6, A-2-7, A-2-4	0	0-30	20-65	15-60	15-60	10-55	25-45	10-25
	19-43	GRX-C, GRV-C, GRX-SIC, CBV-C	GC, GP-GM, GM	A-2-7	0-30	0-50	20-40	15-35	15-35	10-30	50-85	20-60
	43-80	UWB	---	---	---	---	---	---	---	---	---	---
Crackerneck, karst-----	0-4	GR-SIL	ML, GM	A-4	0	0-5	55-80	50-75	50-75	40-70	20-40	2-10
	4-13	GRX-SIL	GM, GC-GM	A-1-a, A-2-4, A-1-b	0-15	0-35	25-40	20-35	20-35	15-30	20-30	3-7
	13-25	GRX-SIL	GM, GC-GM	A-1-a, A-1-b, A-2-4	0-15	0-35	25-40	20-35	18-35	15-30	15-25	3-7
	25-39	CBX-SIL, GRX-SICL, GRX-SIL, GRX-CL	GC, GP-GC	A-2-4, A-2-6, A-2-7	0-25	0-55	20-50	15-40	15-40	10-35	25-45	9-25
	39-51	PCBV-C, PGRV-C	GC-GM, CH, GC	A-2-7, A-7-6	0-15	0-45	40-100	35-100	30-95	25-85	50-65	30-40
	51-68	PGR-C, GRV-C, CBX-C, GRX-SIC	CH, GC, GP-GC	A-2-7, A-7-6	0-10	0-55	25-100	20-100	20-95	12-85	60-88	40-60
	68-80	UWB	---	---	---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
		In			Pct	Pct					Pct	
70069:												
Jollymill, karst	0-2	SPM	---	---	0	0-2	---	---	---	---	---	---
	2-5	GRX-SIL	GM, ML, CL-ML, GC	A-1-a, A-1-b, A-2-4	0	0-5	25-35	20-30	20-30	15-25	20-35	2-10
	5-13	GRX-SIL, GRV-SIL	GM, GC-GM, GC	A-1-a, A-1-b, A-4	0	0-5	25-55	20-50	20-50	15-45	15-30	2-10
	13-22	GRV-SIL, GRX-SIL, GRV-SICL, GRX-SICL	GC, GP-GC	A-6, A-1-a, A-2-4	0	0-20	20-65	15-55	15-50	10-45	20-40	6-20
	22-51	CBV-C, GRV-C, GRX-SIC	GC, GP-GC, CH	A-2-7, A-7-6	0-30	0-40	25-70	15-60	15-60	10-55	60-90	40-60
	51-80	UWB	---	---	---	---	---	---	---	---	---	---
Crackerneck, karst-----												
	0-5	GR-SIL	ML, SM	A-4	0	0-5	65-80	60-75	60-75	45-70	20-40	1-9
	5-10	CNV-SI, GRX-SI, GRX-SIL, CBX-SIL, GRV-SIL	GC-GM, GM, GC	A-4, A-2-4, A-1-a	0-15	0-55	25-55	20-45	20-45	15-40	15-30	1-10
	10-22	GRV-SICL, GRX-SIL, CBX-SIL	GC, GC-GM	A-2-6, A-2-7, A-2-4	0-25	0-55	25-50	20-40	20-40	15-35	25-45	10-25
	22-42	CB-SIL, GRV-SICL, GRX-SICL, GRX-SIL	CL, GP-GC	A-6, A-7-6, A-2-4	0-45	0-45	25-95	20-90	20-90	10-80	30-50	10-30
	42-80	C, GRV-SIC, CBX-C	CH, GC	A-7-6, A-2-7	0-10	0-75	40-100	35-95	30-95	30-85	55-80	35-55
	70070:											
Crackerneck, karst-----	0-5	GRV-SI	GM	A-1-b, A-4, A-2-4	0-10	0-45	35-65	30-60	30-60	25-50	20-40	2-9
	5-9	GRX-SI, GRV-SIL, CBX-SIL, GRX-SIL, CNV-SI	GC, GM, GC-GM	A-1-a, A-2-4, A-4	0-15	0-55	25-60	20-50	20-50	15-45	15-30	2-10
	9-23	GRV-SICL, GRX-CL, GRX-SIL	GC, GC-GM	A-2-4, A-1-a, A-7-6	0-25	0-55	25-50	20-45	20-45	15-40	20-45	6-25
	23-42	STX-SIL, GRV-SICL, GRX-SIL	GP-GC, GC, CL	A-2-6, A-7-6	0-45	0-45	25-65	20-60	20-60	12-55	25-45	12-25
	42-68	CBX-SICL, GRX-SIC, GRX-C, CBX-C	CH, GP-GC, GC	A-2-6, A-7-6, A-2-7	0-10	0-65	25-65	20-60	20-60	12-55	40-75	20-50
	68-80	UWB	---	---	---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
70070: Hailey, karst---	0-6	GRX-SIL	GM, GC-GM	A-2-4, A-1-b, A-1-a	0-10	0-20	25-40	20-35	20-35	15-30	20-39	2-9
	6-14	GRX-SIL, GRV-SIL	GM, GC, GC-GM	A-1-b, A-2-4, A-1-a	0-5	5-15	25-50	15-40	15-40	10-30	17-28	2-10
	14-60	CBX-SIL, GRX-SIL	GC-GM, CL	A-1-a, A-6, A-1-b, A-2-4	0-5	10-65	35-75	25-65	20-65	15-60	20-30	6-12
	60-80	GRV-C, GR-SIC, CBV-SIC, GRV-SIC	GC, CH	A-2-7, A-7-6	0	2-55	35-85	30-75	30-75	25-70	44-59	25-36
70071: Sowcoon-----	0-17	SIL	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	80-100	75-95	20-40	6-15
	17-33	SICL, SIL	SC-SM, CH, CL	A-6, A-7-6	0	0	85-100	80-100	80-95	65-85	30-50	15-30
	33-45	GRV-SICL, SIL, GR-SIL	SC-SM, CL, GC	A-2-6, A-6, A-7-6	0	0	50-100	45-100	45-95	35-85	30-50	12-30
	45-80	GR-SICL, SIL, GRV-SIL, SIC	SC-SM, CH, GC	A-2-6, A-6, A-7-6	0	0	50-100	45-100	40-95	35-85	30-60	12-35
Viburnum-----	0-4	SIL	CL-ML, SC-SM, CL	A-6, A-4	0	0	95-100	85-100	80-95	65-90	25-40	7-15
	4-7	SIL	SC-SM, CL, CL-ML	A-6, A-4	0	0	95-100	85-100	80-95	70-90	25-35	7-12
	7-24	SICL, GR-SICL	CL	A-6, A-7-6	0	0	60-100	55-100	55-95	50-90	40-50	20-30
	24-42	SIL, GR-SIL, GR-SICL	GC, CL	A-6, A-7-6	0	0-10	60-100	55-100	55-95	45-85	35-45	15-25
	42-80	GR-SICL, GRV-SICL, GRX-SICL	GC, CL	A-7-6, A-2-6	0	0-20	25-95	20-75	20-70	15-65	35-50	20-30
70072: Rueter-----	0-5	GRV-SIL	ML, GM, CL, GC-GM	A-1-b, A-4, A-6	0	0-25	30-70	25-60	25-60	20-55	20-40	2-13
	5-29	GRV-SIL, GRX-SIL	GP-GC, GC, GC-GM	A-1-a, A-2-4, A-6	0	0-15	25-55	20-50	20-50	12-45	20-35	6-15
	29-41	GRX-SIL, CBV-SIL, GRV-SICL	GP-GC, GC	A-2-6, A-2-4	0-50	0-65	25-50	20-45	20-45	12-35	20-40	8-20
	41-80	GRV-CL, CBV-C	GP-GC, GM, GC	A-2-6, A-2-7, A-7-6	0-50	0-65	25-50	20-45	20-45	12-40	40-80	20-55
Pomme-----	0-7	SIL	SC-SM, CL, CL-ML	A-4, A-6	0	0-10	80-100	75-100	70-100	60-90	20-40	6-15
	7-24	SIL, GR-SIL, GR-SICL, CL	GC, CL	A-7-6, A-4, A-6	0	0-5	60-100	55-100	55-100	45-95	25-45	9-25
	24-58	GR-CL, GRX-CL, GRV-SICL	GC, GP-GC, CL	A-2-6, A-7-6	0	0-25	25-80	20-75	20-70	12-55	40-50	20-30
	58-80	GR-C, GRV-C, GRX-C	GC	A-7-6, A-2-7	0	3-40	25-50	20-45	20-45	15-40	55-75	35-50

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
70073:												
Beemont-----	0-4	CB-FSL	SM, SC-SM	A-4, A-2-4	0	15-25	75-95	70-90	55-75	30-50	20-35	2-10
	4-10	CB-FSL, CB-VFSL	SC-SM, SC, SM	A-1-b, A-2-4	0	12-20	65-80	55-75	45-70	25-35	15-30	2-10
	10-44	C, GR-C	CH	A-7-6	0	0-5	70-100	60-100	60-100	55-95	65-90	45-60
	44-49	CNV-CL, GR-SIC, CN-SIC, CL	SC, CH, GC	A-2-7, A-7-6	0	0-15	50-95	40-85	35-80	30-75	45-70	25-45
	49-80	UWB	---	---	---	---	---	---	---	---	---	---
70074:												
Townhole-----	0-5	SIL	ML, CL-ML, CL	A-6, A-4	0	0	80-90	75-85	75-85	70-80	20-40	2-15
	5-15	SIL	ML, CL-ML, CL	A-6, A-4	0	0	80-90	75-85	75-85	70-80	20-35	2-15
	15-28	GRX-SICL, GRV- SICL	GC, GP-GC	A-2-7, A-7-6, A-2-6	0	0-10	20-50	15-45	15-45	10-40	35-45	20-25
	28-47	GRV-CL, GRV- SICL, GRX- SICL, GRX-SIL	GC, GP-GC	A-2-6, A-7-6	0	0-10	20-55	15-50	10-45	10-40	30-50	15-30
	47-72	CBV-SIC, GRX- SIC, CBX-SIC, GRV-SIC, CBX-C	CH, GC	A-2-7, A-7-6	0	0-55	20-95	15-95	15-95	15-90	50-65	30-40
	72-79	C	CH	A-7-6	0	0-7	90-100	85-100	85-100	80-95	55-85	35-60
	79-80	UWB	---	---	---	---	---	---	---	---	---	---
70075:												
Waben-----	0-3	GRX-SIL	GC, SC, GP-GM, SC-SM	A-2-4, A-1-a, A-2-6	0-5	0-10	20-45	15-35	15-35	10-30	20-35	2-12
	3-8	GRV-SIL, GRX- SIL	GC, GC-GM	A-2-4, A-4, A-6, A-1-b	0-5	0-10	30-60	20-50	20-50	15-45	20-35	4-12
	8-60	CBX-CL, CBV- SICL, GRV-SIL, GRX-SICL	GP-GC, GC	A-2-4, A-2-6, A-7-6	0-5	0-45	25-50	20-45	15-45	10-40	25-45	10-25
70076:												
Clarksville----	0-3	CBV-SIL	GC-GM, ML, CL-ML	A-2-4, A-6, A-4	0-5	30-55	40-80	35-75	35-75	30-70	20-40	4-13
	3-15	CBV-SIL, GRV- SIL, GR-SIL	CL, GC-GM, CL-ML	A-2-4, A-6, A-4	0-5	20-60	40-80	35-75	35-75	30-70	20-35	4-12
	15-25	GRX-SIL, GRV- SICL, GRV-SIL	GC	A-2-4, A-2-6, A-6	0-5	0-45	30-55	25-50	25-50	20-45	25-40	10-20
	25-80	GRV-SIC	GC	A-7-6, A-2-7	0-5	0-40	35-65	30-55	30-55	25-50	50-60	30-35
Noark-----	0-4	GRV-SIL	GM, GC-GM	A-1-b, A-2-4, A-7-5	0-5	0-15	35-55	30-50	30-50	25-45	25-45	6-13
	4-10	GRV-SIL, GR-SIL	GC, GC-GM	A-6, A-1-b, A-4	0-5	0-10	35-60	30-55	30-55	25-50	20-35	4-12
	10-20	GRX-SIL, GRV- SICL	GC, GC-GM	A-7-6, A-1-a, A-2-4	0-5	0-20	30-55	20-50	20-50	15-45	20-50	6-30
	20-80	CBX-C, GRV-C	GC, CH	A-7-6, A-2-7	0-5	0-55	35-75	30-70	30-70	25-70	60-90	40-60

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
70077: Flagspring-----	0-5	GRX-SIL	GM, GP-GC, GC-GM	A-2-6, A-1-a	0	0-5	20-35	15-30	15-30	10-25	25-40	4-13
	5-10	GRX-SIL, GRV- SIL	GC, GC-GM	A-2-4, A-6, A-1-a	0	0-5	30-55	20-50	20-50	15-45	20-30	4-12
	10-22	GR-SICL, GR- SIL, GRV-SICL	GC, CL	A-6, A-7-6, A-2-6	0	0	50-80	45-75	45-75	35-70	35-50	15-30
	22-33	GR-SIC, GR-C, C	CH	A-7-6	0	0	70-100	65-100	65-95	60-90	60-90	35-65
	33-80	PGRV-CL, PGRX- C, PCBV-C	CL, CH	A-7-6	0	0	85-100	80-100	80-100	75-95	45-70	25-45
70078: Goss-----	0-3	GRX-SIL	GM, GC-GM	A-1-a, A-2-5	0	0-15	25-40	20-30	20-30	15-25	30-50	6-10
	3-21	GRX-SIL, GRV- SIL	GC-GM, GC	A-1-b, A-1-a, A-6	0	0-25	25-65	20-55	20-55	15-50	20-35	6-12
	21-32	GRX-L, GRX-SICL	GC, GP-GC	A-2-6, A-2-4	0	0-25	25-40	20-35	20-35	10-30	25-40	10-20
	32-80	GRV-C, GR-C, CBV-C	GC, CH	A-2-7, A-7-6	0-15	0-40	35-80	30-75	25-75	20-60	60-85	40-60
Rueter-----	0-3	GRX-SIL	GC-GM, GM	A-2-4, A-2-7, A-1-a	0	0-15	25-40	20-35	20-35	15-30	25-45	4-13
	3-7	GRV-SIL, GRX- SIL	GC-GM, GP-GM, GM	A-1-a, A-7-5, A-1-b	0	0-30	25-45	20-40	20-40	12-36	20-45	3-13
	7-23	GRX-SICL, GRV- SICL, GRX-SIL	GC-GM, GP-GC, GC	A-2-4, A-6	0-15	0-30	25-65	20-55	20-55	12-50	25-40	9-20
	23-80	GRX-C, GRV-C, CBV-C, STX-C	GP-GC, GC, CH	A-7-6, A-2-7	0-55	0-55	55-70	20-65	20-65	12-60	50-85	30-60
70079: Viburnum-----	0-3	SIL	ML, CL-ML	A-4, A-7-5	0	0	80-100	75-100	70-95	60-85	25-45	4-13
	3-9	SIL, SI	CL, SM, CL-ML	A-4, A-6	0	0	80-100	75-100	40-100	40-100	20-35	3-12
	9-28	SICL	CL	A-7-6, A-6	0	0	80-100	75-100	75-100	70-95	40-50	25-30
	28-80	GRX-SICL, GRV- SICL, GR-SICL	GC	A-2-6, A-7-6, A-2-7	0	0-15	25-60	20-55	20-55	15-50	35-50	20-30

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
70079: Crackerneck-----	0-4	GRV-SIL	GM, GC-GM	A-2-4, A-4, A-1-b	0	0	40-55	35-50	35-50	20-40	20-40	2-10
	4-11	GRV-SIL	CL, GC, GM, GC-GM	A-2-4, A-4	0-10	0-40	45-65	35-60	35-60	30-55	20-30	3-10
	11-23	GRX-SICL, CBX- SIL, GRX-SIL, GRX-CL	GC	A-2-7, A-2-6, A-2-4	0	0-55	25-40	20-35	15-35	15-30	30-50	10-30
	23-28	GRX-SICL, GRV- SICL, STX-L, GRV-SIL	GP-GC, GC	A-2-7, A-2-4, A-2-6	0-30	0-45	20-40	15-35	15-35	10-30	30-50	10-30
	28-80	GRV-C, CBX- SICL, CBX-C, GRX-SIC	GC	A-7-6, A-2-7	0-10	0-65	30-55	25-50	25-50	20-45	45-90	25-60
70080: Noark-----	0-4	GRV-SIL	GM, GC-GM, GC	A-7-5, A-1-b, A-6	0	0-25	35-60	25-50	25-50	20-45	25-45	6-13
	4-10	GRV-SIL, GR-SIL	GC-GM, CL, SM	A-4, A-1-b, A-6	0	0-15	35-80	25-70	25-70	20-60	20-35	4-12
	10-20	GRX-SIL, GRV- SICL, GR-SIL	CL, GC-GM, GC, GP-GC	A-2-4, A-7-6, A-1-b, A-1-a	0	0-30	25-75	15-65	15-65	10-55	20-50	6-30
	20-80	CBX-C, GRV-C, GRX-C	GC, GP-GC	A-7-6, A-2-7	0-15	0-65	25-55	20-50	20-50	12-45	60-90	40-60
Clarksville-----	0-3	GRV-SIL	GC-GM, GM, GC	A-1-b, A-4, A-6	0	0-30	35-65	30-55	30-55	25-45	20-40	4-13
	3-15	GRV-SIL, GR- SIL, CBV-SIL	GC-GM, GM, CL	A-2-4, A-4, A-6	0-5	0-55	40-80	35-75	35-75	30-65	20-35	4-13
	15-25	GRX-SIL, GRV- SICL, GRV-SIL, CBV-SIL	GC, GC-GM	A-2-6, A-2-4, A-7-6	0-5	0-55	25-55	20-50	20-50	15-40	25-45	9-25
	25-80	CBV-SIC, GRX- SIC, GRV-SIC	GP-GC, GC	A-2-7, A-7-6	0	0-45	25-60	20-55	20-55	12-50	50-65	30-40

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
70080: Crackerneck, karst-----	0-4	GRV-SIL	GM	A-1-b, A-5, A-2-4	0	0-25	35-60	30-55	30-55	25-50	20-45	2-9
	4-11	GRV-SI, CNV-SI, GRX-SIL, CBX- SIL, GRV-SIL	GM, GC, GC-GM	A-4, A-1-b, A-2-4	0-10	0-55	30-55	25-50	25-50	20-50	20-30	2-10
	11-18	CBV-SICL, GRV- SIL, GRX-SIL, GRV-SICL	GC-GM, GC	A-1-b, A-7-6, A-2-6	0	0-45	30-55	20-50	20-50	15-45	20-45	6-25
	18-26	GR-SIL, CB-SIL, GRV-SICL, GRX- SICL	GC, CL	A-7-6, A-2-4	0-30	0-30	30-80	20-75	20-75	15-70	25-45	9-25
	26-80	CBV-C, GRV-SIC, C	GC, CH	A-7-6	0-10	0-55	50-100	45-100	45-100	40-90	55-80	35-55
70081: Rueter-----	0-4	GRX-SIL	GC-GM, GP-GM, GC	A-1-a, A-2-6	0	0-25	20-40	15-35	15-35	10-30	20-35	2-12
	4-18	GRX-SIL	GC-GM, GP-GC, GC	A-1-a, A-2-6	0	0-15	20-35	15-30	15-30	10-25	20-35	6-13
	18-33	GRX-SIL, GRV- SIL, GRV-SICL	GC	A-2-4, A-2-6, A-6	0-35	0-35	25-60	20-55	20-55	15-50	25-40	9-20
	33-80	GRV-C	GC	A-2-7, A-7-6	0-25	0-25	35-65	30-55	20-50	20-50	50-85	30-60
Goss-----	0-9	GRX-SIL	GM, GP-GC, GC	A-1-a, A-2-6, A-2-4, A-2-7	0	0-30	20-35	15-30	15-30	10-25	25-50	6-13
	9-18	GRV-SIL, GRX- SIL, GRV-SICL	GC, GP-GC	A-7-6, A-2-6	0	0-30	20-55	15-50	15-50	10-45	30-43	12-20
	18-80	GRX-C, GRV-C, CBV-C, GRX- SICL	CH, GC, MH	A-7-6, A-2-7	0-15	0-40	30-75	20-65	20-65	15-60	45-85	25-60
Jollymill-----	0-5	GR-SIL	CL-ML, GM, ML	A-4	0	0-5	55-80	50-75	50-75	45-60	20-35	2-10
	5-13	GRV-SIL, GRX- SIL	GC-GM, GC, GP-GM	A-1-a, A-1-b, A-2-4, A-4	0	0-5	20-55	15-50	15-50	10-45	20-30	2-10
	13-22	GRV-SIL, GRX- SIL, GRV-SICL	GP-GC, GC-GM, GC	A-7-6, A-2-4, A-2-6	0	0-5	20-55	15-50	15-50	10-45	25-45	9-25
	22-44	CBV-C, GRX-SIC, GRV-C	GC, GP-GC	A-7-6, A-2-7	0-30	0-50	20-60	15-55	15-55	10-50	55-90	35-60
	44-80	UWB	---	---	---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
70082: Paintbrush-----	0-8	SIL	ML, CL, CL-ML	A-7-6, A-4, A-6	0	0	95-100	90-100	85-100	70-90	25-45	7-15
	8-14	SIL, L	CL, SC-SM	A-6, A-4	0	0-10	90-100	85-100	80-100	65-90	25-40	9-20
	14-29	SICL, SIL, CL	CL	A-7-6, A-6	0	0-10	90-100	85-100	65-100	65-100	35-50	15-25
	29-37	GRX-SICL, GR- CL, CBX-CL	CL, GC	A-7-6, A-2-6, A-2-7	0	0-55	25-70	20-60	20-60	15-55	40-50	20-25
	37-80	GRV-C, C, GR- SIC, SIC, GRV- CL	CH, GC	A-7-6, A-2-7	0	0-7	40-95	35-90	35-90	25-80	45-75	25-50
Friendly-----	0-9	SIL	SC-SM, CL-ML, CL	A-4, A-6	0	0	90-100	85-100	80-100	65-90	20-35	6-13
	9-14	SIL	CL-ML, SC-SM, CL	A-4, A-6	0	0-5	90-100	85-100	80-100	65-90	20-35	6-13
	14-32	SIC, SICL	CL, CH	A-7-6	0	0-5	90-100	85-100	80-100	65-90	45-70	25-40
	32-57	SIL, GR-SICL, GRV-CL	CH, CL, GC	A-2-6, A-7-6	0	0-20	45-90	35-85	35-85	25-75	35-50	15-30
	57-80	GRV-CL, SIC, GR-C	CH, GC	A-2-6, A-7-6	0	0-20	35-85	30-80	30-80	25-75	35-60	20-35
70083: Eldorado-----	0-10	GRV-SIL	GC, GC-GM	A-6, A-2-4, A-1-b	0	0-25	30-55	25-50	25-50	20-45	25-40	6-15
	10-31	GRV-CL, GRV-L, GRV-SIL	GC	A-2-6, A-7-6, A-2-7	0-25	0-25	35-55	30-50	30-50	25-40	30-50	15-25
	31-80	GRX-C, CBV-C	CH, GP-GC, GC	A-7-6, A-2-7	0-10	0-55	20-70	15-65	15-65	12-60	50-70	30-45
70150: Moko-----	0-7	GRX-L	GM, GP-GC	A-2-4, A-2-6, A-2-7	0-5	0-30	25-40	20-35	20-30	10-25	30-68	10-25
	7-18	GRX-SIL, CNV- CL, CNV-L	SC, MH, SM	A-2-7, A-2-4, A-7-5	0-5	5-55	60-75	20-65	20-60	15-55	30-60	10-25
	18-80	UWB	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
71253: Hartville-----	0-8	GR-SIL	CL-ML, CL	A-6, A-4	0	0	65-80	60-75	60-70	50-60	20-40	6-15
	8-14	GR-SIL, SICL	CL	A-6, A-7-6	0	0	75-100	70-100	65-95	55-90	30-50	13-30
	14-31	GR-C, GR-SIC, SIC	CH	A-7-6	0	0	75-100	70-100	65-95	55-90	50-70	30-45
	31-80	GRV-C, GRX-C	GC	A-7-6, A-2-7	0	0	25-55	20-50	20-45	15-45	50-70	30-45

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
71255: Britwater-----	0-10	GR-SIL	CL, CL-ML	A-4, A-6	0	0	65-80	60-75	60-70	50-60	20-35	4-13
	10-20	GR-SIL, SIL	CL, GC	A-6, A-4	0	0	70-100	65-95	60-90	45-90	25-40	10-20
	20-68	GR-L, GRV-L, GR-SIL	CL, GC	A-6, A-2-6	0	0	45-80	40-75	35-70	25-60	30-40	13-20
	68-80	GRV-SICL, GR- SICL	CL, GC	A-2-7, A-7-6, A-2-6	0	0	35-80	30-70	30-70	20-65	40-50	20-30
71256: Townhole-----	0-9	GR-SIL	ML, GM, CL-ML, CL	A-6, A-4	0	0	60-80	50-75	50-75	40-70	20-40	2-13
	9-17	GR-SIL, GRV-SIL	GC, GM, CL	A-6, A-4, A-2-4	0	0	40-75	35-70	35-70	30-60	15-35	2-13
	17-27	GRV-SIL, GRX- SIL	GC-GM, GC	A-2-4, A-6, A-2-6	0	0-10	30-60	20-55	20-55	15-45	20-35	7-17
	27-50	GRV-SIL, GRV- SICL, GRX-CL, GRX-SICL, GRX- SIL	GM, GC	A-2-6, A-2-7, A-7-6, A-1-a	0	0-15	25-60	20-50	20-50	15-40	30-50	4-30
	50-80	GRV-SICL, CBV- SICL, GRV-SIC, CBX-C	GP-GC, CH, GC	A-7-6, A-2-6	0	0-55	25-65	20-60	20-60	10-55	40-75	20-50
Aslinger-----	0-8	SIL	ML, CL-ML, CL	A-6, A-4	0	0	85-100	80-100	80-95	65-90	25-40	6-13
	8-29	SIL, SICL	CL	A-7-6, A-6	0	0	85-100	80-100	80-95	65-90	30-45	13-25
	29-64	GR-SICL, GR- SIL, GRV-L, GRV-SIL, GRX- L, GRX-SIL	GC, CL	A-2-6, A-7-6, A-6	0	0-10	35-80	25-75	25-75	20-70	25-45	12-25
	64-80	GRX-CL, GRV-CL, GRV-L, GR-L	GC, GP-GC	A-2-6, A-7-6	0	0-15	25-60	15-55	15-50	10-45	25-45	12-25
71257: Townhole, karst	0-5	SIL	ML, CL	A-4, A-6	0	0	85-100	80-95	80-90	65-80	20-40	2-13
	5-16	SIL, GR-SIL, GRV-SIL	GM, CL	A-2-4, A-6, A-4	0	0	40-95	35-90	35-85	30-70	20-35	2-13
	16-31	GRV-SIL, GRX- SIL	GC-GM, GC	A-1-a, A-6, A-2-4	0	0-5	25-60	20-55	20-50	15-45	20-40	6-15
	31-48	GRX-CL, GRV- SICL, GRX- SICL, GRX-SIL	GC, GP-GC	A-2-6, A-7-6, A-2-7	0	0-15	25-50	20-45	20-45	12-40	30-50	12-30
	48-70	GRX-SC, CBX- SICL, GRV-SIC, CBX-C	GC, GP-GC, CH	A-7-6, A-2-6, A-2-7	0	0-55	20-70	15-65	15-60	10-55	30-75	15-50
	70-80	GRX-L, CNV-C, GRX-SICL, CBV- C	GP-GC, GC	A-2-4, A-7-6	0	0-45	20-65	15-60	15-55	10-45	25-75	10-50

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
In					Pct	Pct					Pct	
71257:												
Aslinger, karst	0-6	SIL	CL, CL-ML, ML	A-6, A-4	0	0	80-100	75-100	70-100	60-90	20-40	6-13
	6-30	GR-SIL, SICL	CL, GC	A-7-6, A-6	0	0-10	60-100	55-100	55-100	45-95	30-45	13-25
	30-37	GRX-SIL, GR-SIL, GRV-L, GRV-SIL, GRX-L, GR-L	GC, GP-GC, CL	A-6, A-2-6, A-2-4	0	0-15	25-80	20-70	20-70	12-60	20-40	7-20
	37-68	GRX-CL, GR-L, GRV-L, GRV-CL	GP-GC, GC	A-2-6, A-2-7, A-7-6	0	0-15	25-60	20-55	10-50	5-40	30-50	12-30
	68-80	GRX-SC, GR-C, GRV-CL, GR-SICL, CBX-C	GP-GC, GC	A-2-6, A-2-7	0	0-40	25-45	20-40	20-40	10-35	40-65	25-40
71258:												
Maplegrove-----	0-11	SIL	CL, CL-ML	A-6, A-4	0	0	100	95-100	89-94	83-88	25-35	7-12
	11-27	SICL, SIC	CH, CL	A-7-6, A-6	0	0-2	80-100	75-100	68-97	65-94	40-65	20-40
	27-46	GR-SICL, SICL	CL	A-6, A-7-6	0-25	0-15	60-100	55-100	50-95	50-91	35-50	20-30
	46-80	GRV-C, GRX-C	GC, GP-GC, CH	A-7-6, A-2-7	0-25	0-30	20-70	15-65	15-60	10-55	60-90	35-60
Carl-----	0-13	SICL	CH, CL	A-7-6	0	0	100	100	95-100	90-95	45-60	20-30
	13-27	SIC, SICL	CH	A-7-6	0	0	90-100	85-100	80-100	75-95	50-75	25-45
	27-68	C, SIC	CH	A-7-6	0	0	90-100	85-100	80-100	75-95	50-75	30-50
	68-80	GR-C, GRV-C	GC, CH	A-7-6, A-2-7	0-5	0-15	40-75	35-70	30-65	25-60	50-75	30-50
71752:												
Bearthicket-----	0-11	SIL	CL-ML, CL	A-7-6, A-6, A-4	0	0	95-100	90-100	85-100	70-90	25-45	6-20
	11-19	SIL	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	20-40	6-20
	19-67	SICL, SIL	CL, SC-SM	A-6, A-4	0	0	95-100	90-100	85-100	70-90	25-40	9-20
	67-80	GRX-L, GRX-CL, GRX-SICL, GRV-CL, GRV-SICL	CL, GC	A-7-6, A-2-6	0	0	25-80	20-75	20-70	15-60	30-50	15-30
71753:												
Cedargap-----	0-30	GRX-SICL	GM, GP-GC, GC	A-2-7, A-2-6	0	0-15	20-35	15-30	15-30	10-25	40-55	15-25
	30-80	GRX-CL, GRX-L, GRV-L, GRV-SICL	GP-GC, GC	A-2-7, A-2-4, A-2-6	0	0-15	20-50	15-45	15-40	10-35	30-50	10-25

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
71753: Pinerun-----	0-9	SIL	SC-SM, CL, CL-ML	A-6, A-4	0	0-5	80-95	75-90	40-90	40-90	25-40	7-15
	9-17	GR-SIL, GRX- SIL, GRV-SIL, GRX-SICL	GC, CL	A-7-6, A-6, A-2-4	0	0-30	30-80	20-75	20-65	15-60	30-45	10-25
	17-57	GRX-CL, GRX- SIL, GRV-SIL, GRX-SICL	GC, GP-GC	A-2-6, A-2-7	0	0-15	20-50	15-45	15-45	10-35	30-45	15-25
	57-80	GRX-C, GRX-CL, GRV-SICL, GRX- SCL	GP-GC, GC	A-2-6, A-2-7	0	0-25	20-45	15-40	15-40	10-35	40-65	20-40
71754: Waben-----	0-9	GRX-SIL	GM, GP-GM, GP-GC	A-2-6, A-2-7, A-1-a, A-2-4	0	0	20-30	15-25	15-25	10-20	25-45	6-15
	9-24	GRX-SIL, GRV- SIL	GC-GM, GC, GP-GC	A-2-6, A-6, A-1-a, A-2-4	0	0-10	20-55	15-50	15-50	10-40	20-35	4-15
	24-80	GRX-SIL, GRX-L, GRV-SIL	GP-GC, GC	A-2-7, A-2-4, A-2-6	0	0-25	20-50	15-40	15-35	10-25	25-45	10-25
Cedargap-----	0-34	GRX-SICL	GM, GP-GC, GC	A-2-7, A-2-6	0	0-15	25-35	20-30	20-30	12-25	40-55	20-25
	34-80	GRX-SIL, GRX-L, GRV-CL	GC, GP-GC	A-2-4, A-2-7, A-7-6, A-2-6	0	0-15	20-50	15-45	10-45	10-40	30-50	10-25
71755: Cedargap-----	0-26	GRX-L	GM, GP-GC, GC	A-2-4, A-2-7, A-1-a	0	0-15	25-35	20-30	20-25	10-20	25-45	6-13
	26-40	GRX-L, GRX-CL, GRV-L	GC, GP-GC, GC-GM	A-2-4, A-1-a, A-2-7	0	0-15	20-50	15-45	15-40	10-30	20-45	6-20
	40-80	GRX-L, CBX-SL, GRX-LCOS	GP-GM, GC, GP-GC	A-2-6, A-1-a	0	0-40	20-30	15-30	10-30	5-20	0-35	NP-13
Gladden-----	0-8	L	ML, CL-ML, CL	A-4, A-6	0	0	90-100	85-100	75-90	55-70	20-35	2-13
	8-58	L, FSL, SL	CL, CL-ML, SM	A-2-4, A-6	0	0	90-100	85-100	55-90	30-65	15-35	2-13
	58-80	GRX-COS, GRV-S, GR-LS	SC-SM, GP, GP-GM	A-1-b, A-1-a	0	0	20-75	15-70	5-45	4-15	0-20	NP-6
73116: Pomme-----	0-7	SIL	CL	A-4, A-6	0	0	80-100	75-100	70-95	60-90	25-40	9-20
	7-19	SICL, GR-SIL, GR-SICL, CL	CL	A-6, A-7-6	0	0-10	70-96	65-95	60-90	50-85	30-45	15-25
	19-57	GRV-SICL, CBV- SICL, GRV-CL	CL, GC	A-2-6, A-6, A-7-6, A-2-7	0	0-45	35-60	30-55	30-55	25-50	40-50	20-30
	57-86	GRX-C, CBV-C	GC	A-2-7, A-7-6	0	0-45	25-65	20-55	20-55	15-50	50-80	30-55

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
73120: Rueter-----	0-4	GRX-SIL	GM, GC-GM	A-1-a, A-1-b, A-2-4	0	0-25	25-40	20-35	20-35	15-30	20-35	2-9
	4-11	GRV-SIL	GC, GC-GM	A-2-4, A-1-b, A-4	0	0-20	35-55	30-45	30-45	25-40	20-30	4-10
	11-44	GRV-SIL, GRX- SIL, GRV-SICL	GC	A-2-6, A-4, A-6, A-2-4	0	0-35	25-50	20-45	20-45	15-40	25-40	9-20
	44-60	GRV-SIC, GR- SIC, GRV-C	GC, CH	A-2-7, A-7-6	0	0-20	40-65	35-60	35-60	30-55	50-85	30-60
Gasconade-----	0-6	GR-CL	MH, OH, GC	A-7-5, A-7-6	0	0-10	60-80	55-75	50-70	40-60	50-70	25-30
	6-12	FLX-CL, FLV-CL	CH, GC, MH	A-7-6, A-2-7	5-12	30-65	45-80	40-75	35-70	30-65	45-60	20-30
	12-80	UWB	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
73349: Boskydell-----	0-6	GRV-SICL	GC, GM	A-2-6, A-7-5, A-2-7	0	0-25	35-55	30-50	30-50	25-45	40-65	20-30
	6-16	GRX-C, GRV-C, GR-C	GC, CH	A-2-7, A-7-6	0	0-35	25-65	20-60	20-60	15-55	53-85	32-55
	16-69	GRV-SIC	GC	A-2-7, A-7-6	0	0-30	35-55	30-50	30-50	25-45	50-65	30-40
	69-80	WB	---	---	---	---	---	---	---	---	---	---
73350: Clinkenbeard----	0-4	FLV-L	GM	A-2-7, A-7-6, A-2-4	0-25	13-45	35-60	30-55	25-50	20-40	35-50	9-20
	4-13	FLV-SICL, CBV- SIC, FLX-L	SW-SM, GP-GC, GC	A-7-6, A-2-6, A-2-7	0-25	0-55	20-60	15-55	10-55	5-50	30-70	12-40
	13-33	CBV-SIC, CNX-C	CH, GC, SC	A-2-7, A-7-6	0-30	0-60	30-65	25-55	15-55	15-55	55-75	30-45
	33-80	UWB	---	---	---	---	---	---	---	---	---	---
Gobbler-----	0-7	GR-SIL	CL-ML, GC-GM, ML	A-4, A-7-6	0	0-10	55-80	50-75	50-75	40-65	25-50	6-20
	7-16	GRV-SIL, GR- SIL, GRV-SICL	GC	A-2-4, A-6, A-7-6	0	0-20	30-65	25-60	25-60	20-50	25-45	10-20
	16-38	GRX-CL, GRV-C, CBX-C, GRV- SICL	GC	A-7-6, A-2-7	0	5-50	25-50	20-45	20-45	15-40	45-60	25-35
	38-43	CBV-C, GRX-C, GRV-C	GC, CH	A-7-6, A-2-7	0-20	5-50	20-65	15-60	15-60	15-60	55-85	30-60
	43-50	CBX-SICL	GC	A-2-7, A-2-6	0-5	20-55	30-45	25-40	25-40	20-35	35-45	20-25
	50-80	UWB	---	---	---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
73351: Sonsac-----	0-7	GRX-SIL	GM, GC	A-2-6, A-2-7, A-2-4	0	0-15	25-35	20-30	20-30	15-25	30-50	9-17
	7-15	CBX-SIL, GRX- SIL, GRV-SIL	GC	A-2-6, A-2-4	0	0-60	25-45	20-40	20-40	15-35	25-40	9-20
	15-22	CBX-SICL, GRX- SICL, GRV-SIL	GC	A-2-6, A-2-7	0	0-60	25-50	20-40	20-40	15-35	30-50	15-30
	22-28	FLX-SIC	GC	A-2-7	0-10	0-50	30-50	20-40	20-40	15-35	50-70	30-45
	28-80	UWB	---	---	---	---	---	---	---	---	---	---
Rueter-----	0-6	GRV-SIL	GM	A-2-4, A-1-b, A-6	0	0-15	30-55	25-50	25-50	20-45	20-40	2-13
	6-13	GRV-SIL	GC, GC-GM	A-1-b, A-2-4, A-6	0	0-20	35-55	30-50	30-50	25-45	20-40	6-15
	13-32	GRX-SIL, GRV- SIL, GRV-SICL	GC, GP-GC	A-2-4, A-2-6	0	0-35	20-40	15-35	15-35	10-30	20-40	7-20
	32-80	GRX-CL, CBV-C, GRV-C, GRX-SIC	GC, GP-GC	A-2-6, A-2-7	0-25	0-30	20-45	15-40	15-40	10-35	35-75	20-50
73352: Jollymill-----	0-4	GRV-SIL	GM	A-2-4, A-1-b, A-5	0	0-10	35-55	30-50	30-50	25-45	25-45	2-10
	4-13	GR-SIL, GRV-SIL	CL, GM, CL-ML	A-4, A-2-4	0	0-10	40-80	35-75	35-70	30-65	15-30	2-10
	13-27	GRX-SIL, GRV- SICL, GRX-SICL	GC-GM, GC	A-2-6, A-1-a, A-7-6	0	0-20	25-50	20-45	20-45	15-40	20-45	6-25
	27-41	PCBV-C, CBX-C, GR-C, GRV-C, GRX-SIC	GC, CH	A-7-6, A-7, A-2-7	0-25	0-60	35-80	25-70	25-70	20-70	50-90	30-60
	41-80	UWB	---	---	---	---	---	---	---	---	---	---
Bendavis-----	0-4	GRX-SIL	GM	A-1-a, A-2-5, A-1-b	0-5	0-25	25-40	20-30	20-30	15-25	25-45	3-10
	4-10	GRX-SIL, GRV- SIL	GC-GM, GM, GC	A-4, A-1-a, A-1-b	0-5	0-5	25-50	20-45	20-45	15-40	20-30	3-10
	10-23	GRX-SIL, GRX- SICL, CBV-SIL, GRX-L	GC, GP-GC, GC-GM	A-6, A-2-4, A-1-b, A-1-a	0-72	0-35	20-55	15-50	15-45	10-40	20-40	4-20
	23-33	GRX-SICL, GRX- SIL	GP-GC, GC	A-2-7, A-1-a, A-2-6	0-70	0-45	20-45	15-35	15-35	10-30	20-45	4-25
	33-80	UWB	---	---	---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
73353: Hailey-----	0-10	GRX-SIL	GM, GP-GM, GC-GM	A-1-b, A-2-4, A-1-a	0-5	0-30	20-40	15-35	15-35	10-30	20-40	2-9
	10-45	GRV-SIL, GRX- SIL	GC, GP-GC, GC-GM	A-1-a, A-1-b, A-2-4, A-2-6	0-5	0-30	20-45	15-40	15-40	10-35	20-35	4-13
	45-66	CBX-SL, GRX-SIL	GC, GP-GC, GC-GM	A-2-4, A-6, A-1-a	0-5	5-70	25-55	20-45	15-45	5-40	20-40	6-15
	66-80	CBV-SICL, GR- SIC, GRV-C	CH, GC	A-2-7, A-7-6	0	5-50	35-65	30-60	30-60	25-55	45-70	25-45
Sonsac-----	0-2	GRX-SIL	GM, GP-GC	A-1-a, A-2-7, A-1-b, A-2-4	0-20	0-30	20-40	15-40	15-40	10-35	25-45	4-15
	2-11	CBX-SIL, GRV- SICL, GRV-SIL	GC-GM, CL	A-7-6, A-1-b, A-4	0-15	5-55	40-70	35-65	25-65	25-60	20-45	4-20
	11-16	CBX-SIL, CBX- SICL	GC, GC-GM	A-6, A-1-b, A-2-4	0-10	35-55	30-50	25-45	25-45	20-40	20-40	6-20
	16-26	FLX-C, STX-SIC	GC	A-2-7, A-7-6	25-40	5-50	30-55	25-50	25-50	20-45	50-80	30-55
	26-80	UWB	---	---	---	---	---	---	---	---	---	---
73355: Moko-----	0-11	GRX-CL	GM	A-2-7, A-2-4	0-10	5-25	25-45	20-35	15-35	15-30	35-65	10-25
	11-80	UWB	---	---	---	---	---	---	---	---	---	---
Blueye-----	0-7	GR-L	GC, SM	A-7-5, A-2-4, A-7-6	0	0-10	55-80	50-75	45-70	35-50	30-55	10-20
	7-10	GRV-CL, GRV-SIL	GC	A-2-7, A-7-6, A-2-6	0	0-10	35-55	30-50	30-50	25-40	32-52	15-25
	10-25	C, GR-SIC	CH	A-7-6	0	0-5	70-100	60-100	60-100	55-90	50-80	30-50
	25-80	UWB	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
73356: Moko-----	0-7	CNX-L	GM, GC	A-2-4, A-2-6, A-2-7	0-15	5-40	40-62	35-55	30-50	25-35	30-60	10-20
	7-12	CNX-SICL, CNV- CL, FLX-SIL, CNV-SIL	GM, GC	A-2-4, A-7-5, A-2-6, A-6	0-15	35-70	25-55	20-50	20-50	15-45	30-60	10-25
	12-80	UWB	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
73357: Moko-----	0-8	CNV-CL	OH, GC	A-6, A-2-6, A-7-5	0-20	25-60	50-85	45-80	45-80	35-70	40-70	15-25
	8-80	UWB	---	---	---	---	---	---	---	---	---	---
Boskydell-----	0-5	CNV-SICL	MH, CL	A-7-5, A-7-6	0	20-45	60-90	55-85	55-85	50-80	45-65	20-30
	5-64	CNV-SIC, GR- SIC, PCNV-SIC	CH	A-7-6	0	10-55	65-100	60-90	60-90	55-85	50-70	30-40
	64-80	PCNX-SIC, CNX- SIC	---	A-7-6	---	---	---	---	---	---	---	---
Rock outcrop.												
73358: Eldorado-----	0-10	GRV-SIL	GC-GM, CL, GC	A-1-b, A-6, A-2-4	0	0-30	35-65	30-60	30-60	25-55	25-40	6-15
	10-31	GRV-L, GRV-CL	GC	A-7-6, A-2-6	0-25	0-30	35-65	30-60	30-55	25-50	35-50	15-25
	31-65	GRV-C, GRX-C, CBV-C	GC, CH	A-7-6, A-2-7	0-10	0-40	30-65	20-60	20-60	15-55	50-70	30-45
	65-80	GR-C, SIC	GC, CH	A-7-6	0	0-10	55-85	50-80	50-80	45-75	55-90	30-65
Moko-----	0-8	GRV-L	GM, GC	A-2-4, A-7-5, A-2-7	0-3	0-20	30-55	25-50	15-50	15-45	30-70	10-25
	8-18	CNX-SIL	GC, GM, MH	A-2-4, A-7-5, A-7-6	0-5	40-65	40-70	35-65	35-65	30-60	30-55	10-20
	18-80	UWB	---	---	---	---	---	---	---	---	---	---
73359: Bona-----	0-11	GRX-SIL	GM, GC	A-2-7, A-2-4, A-2-6	0	0-40	25-40	20-35	20-35	15-30	30-50	9-20
	11-19	GRV-L, GRX-CL	GC	A-2-6, A-7-6, A-2-7	0	0-40	25-60	20-55	15-50	15-45	30-55	15-30
	19-35	GRV-SIC, GRV-C	GC	A-7-6, A-2-7	0	0-20	30-55	25-50	25-50	20-45	60-80	35-50
	35-65	SIC, C	SC, CH	A-7, A-7-6	0	0-7	80-100	75-100	75-100	40-95	60-90	35-60
	65-80	UWB	---	---	---	---	---	---	---	---	---	---
Moko-----	0-8	GRV-L	GC, GM	A-7-5, A-2-4, A-2-7, A-2-6	0-3	0-20	30-60	25-55	25-50	20-40	30-60	10-20
	8-18	GRV-L, CNX-SIL	GM, GC	A-7-5, A-2-4, A-2-7, A-6	0-5	10-70	35-60	30-55	30-55	20-45	30-60	10-20
	18-80	UWB	---	---	---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
74640:												
Hootentown-----	0-7	SIL	CL, CL-ML	A-6, A-4	0	0	90-100	85-100	80-95	75-90	20-40	6-15
	7-12	SIL	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	75-90	20-30	6-12
	12-32	SIL, SICL	CL	A-4, A-6	0	0	95-100	90-100	85-95	70-90	25-40	9-20
	32-60	SIL, SICL, GR- SICL, CL	CL	A-7-6, A-6, A-4	0	0	75-100	70-100	65-100	55-90	25-45	10-25
99000.												
Pits, quarries												
99001.												
Water												
99003.												
Miscellaneous water												
99007.												
Dam												
99016:												
Water.												
Riverwash.												

Table 18.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. 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 (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
70067:														
Pembroke, karst	0-8	4-14	65-80	12-22	1.30-1.55	4.00-14.00	0.22-0.24	0.0-2.9	2.0-5.0	.43	.43	5	5	56
	8-15	4-14	60-80	12-27	1.30-1.55	4.00-14.00	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43			
	15-28	4-14	55-70	20-35	1.40-1.70	4.00-14.00	0.17-0.22	0.0-2.9	0.2-1.5	.43	.43			
	28-69	4-25	15-65	30-55	1.35-1.65	4.00-14.00	0.05-0.20	3.0-5.9	0.2-1.0	.17	.37			
	69-80	---	---	---	---	0.00-0.42	---	---	---	---	---			
70068:														
Bendavis, karst	0-4	14-28	50-80	8-15	1.30-1.50	14.00-42.00	0.10-0.20	0.0-2.9	1.0-4.0	.32	.43	2	6	48
	4-31	12-33	40-75	11-29	1.30-1.50	4.00-14.00	0.02-0.12	0.0-2.9	0.2-1.5	.10	.49			
	31-80	---	---	---	---	0.00-0.42	---	---	---	---	---			
Jollymill, karst-----	0-3	10-22	60-82	5-15	1.20-1.40	14.00-42.00	0.18-0.23	0.0-2.9	2.0-5.0	.43	.43	3	5	56
	3-9	10-23	60-83	5-15	1.25-1.45	14.00-42.00	0.13-0.19	0.0-2.9	0.5-2.0	.28	.64			
	9-19	8-20	50-75	15-35	1.40-1.60	1.40-4.00	0.02-0.16	0.0-2.9	0.2-1.5	.10	.37			
	19-43	5-20	15-55	40-80	1.40-1.70	1.40-4.00	0.02-0.05	3.0-5.9	0.1-1.0	.05	.24			
	43-80	---	---	---	---	0.00-0.42	---	---	---	---	---			
Crackerneck, karst-----	0-4	10-20	70-85	5-15	1.20-1.40	14.00-42.00	0.12-0.20	0.0-2.9	2.0-6.0	.28	.49	3	6	48
	4-13	10-25	70-80	6-11	1.25-1.45	14.00-42.00	0.04-0.12	0.0-2.9	0.5-2.0	.15	.55			
	13-25	10-25	70-80	6-11	1.30-1.50	14.00-42.00	0.03-0.11	0.0-2.9	0.2-1.0	.10	.64			
	25-39	10-25	50-75	14-35	1.40-1.60	4.00-14.00	0.02-0.12	0.0-2.9	0.1-0.8	.10	.49			
	39-51	7-20	30-40	40-55	1.40-1.70	1.40-4.00	0.02-0.10	3.0-5.9	0.1-0.5	.10	.24			
	51-68	4-10	8-45	54-84	1.30-1.60	4.00-14.00	0.02-0.12	3.0-5.9	0.1-0.5	.05	.10			
	68-80	---	---	---	---	0.00-0.42	---	---	---	---	---			
70069:														
Jollymill, karst-----	0-2	10-25	60-85	5-15	0.02-0.20	42.00-141.00	---	---	35-90	---	---	3	8	0
	2-5	10-25	60-85	5-15	1.20-1.40	14.00-42.00	0.04-0.10	0.0-2.9	1.0-4.0	.15	.55			
	5-13	10-25	60-85	5-15	1.25-1.45	4.00-14.00	0.04-0.16	0.0-2.9	0.5-2.0	.15	.64			
	13-22	8-20	55-80	10-30	1.40-1.60	4.00-14.00	0.03-0.14	0.0-2.9	0.2-1.5	.17	.64			
	22-51	2-15	10-45	55-85	1.40-1.70	1.40-4.00	0.02-0.12	3.0-5.9	0.1-1.0	.05	.15			
	51-80	---	---	---	---	0.00-0.42	---	---	---	---	---			
Crackerneck, karst-----	0-5	6-12	70-90	4-15	1.30-1.50	14.00-42.00	0.15-0.20	0.0-2.9	2.0-6.0	.32	.49	3	6	48
	5-10	6-12	70-90	4-15	1.30-1.50	14.00-42.00	0.02-0.15	0.0-2.9	0.2-1.5	.20	.64			
	10-22	6-20	55-85	15-35	1.40-1.50	4.00-14.00	0.02-0.12	0.0-2.9	0.2-0.5	.15	.49			
	22-42	8-20	50-70	18-40	1.50-1.70	1.40-4.00	0.02-0.14	0.0-2.9	0.1-0.5	.37	.49			
	42-80	4-10	25-50	50-75	1.30-1.50	4.00-14.00	0.02-0.12	3.0-5.9	0.1-0.5	.10	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
70070: Crackerneck, karst-----	0-5	7-12	70-90	5-15	1.30-1.50	14.00-42.00	0.05-0.16	0.0-2.9	2.0-6.0	.10	.43	4	8	0
	5-9	6-12	70-90	5-15	1.30-1.50	14.00-42.00	0.02-0.16	0.0-2.9	0.2-1.5	.15	.64			
	9-23	6-24	50-80	10-35	1.40-1.50	4.00-14.00	0.01-0.10	0.0-2.9	0.2-0.5	.10	.64			
	23-42	10-20	50-70	18-35	1.50-1.70	1.40-4.00	0.00-0.09	0.0-2.9	0.1-0.5	.10	.49			
	42-68	4-10	30-55	30-70	1.30-1.50	4.00-14.00	0.00-0.05	3.0-5.9	0.1-0.5	.05	.28			
	68-80	---	---	---	---	0.00-0.42	---	---	---	---	---			
Hailey, karst--	0-6	10-20	60-85	5-15	1.20-1.40	42.00-141.00	0.03-0.13	0.0-2.9	2.0-6.0	.10	.32	3	8	0
	6-14	10-20	60-85	5-15	1.20-1.40	42.00-141.00	0.03-0.13	0.0-2.9	0.5-1.0	.10	.32			
	14-60	10-30	50-75	10-18	1.20-1.40	42.00-141.00	0.01-0.11	0.0-2.9	0.1-0.5	.05	.49			
	60-80	2-15	30-60	35-50	1.35-1.55	14.00-42.00	0.03-0.10	3.0-5.9	0.1-0.5	.10	.24			
70071: Sowcoon-----	0-17	1-15	65-85	10-20	1.25-1.45	4.00-14.00	0.20-0.24	0.0-2.9	1.0-4.0	.64	.64	5	8	0
	17-33	1-12	55-80	20-40	1.30-1.50	4.00-14.00	0.16-0.22	3.0-5.9	0.5-1.5	.37	.43			
	33-45	1-15	55-80	18-40	1.70-1.90	0.42-1.40	0.07-0.15	3.0-5.9	0.2-1.0	.24	.49			
	45-80	1-15	45-80	18-50	1.40-1.60	1.40-4.00	0.06-0.22	3.0-5.9	0.2-1.0	.24	.49			
Viburnum-----	0-4	8-15	65-80	12-20	1.25-1.45	4.00-14.00	0.20-0.23	0.0-2.9	2.0-4.0	.37	.43	4	5	56
	4-7	6-15	65-80	12-18	1.30-1.50	4.00-14.00	0.20-0.23	0.0-2.9	1.0-2.0	.49	.55			
	7-24	4-15	50-65	33-40	1.40-1.60	4.00-14.00	0.12-0.20	3.0-5.9	0.3-1.0	.24	.37			
	24-42	4-16	55-70	25-35	1.50-1.70	1.40-4.00	0.11-0.19	3.0-5.9	0.1-0.5	.24	.49			
42-80	4-18	45-70	27-38	1.40-1.60	4.00-14.00	0.01-0.17	3.0-5.9	0.1-0.5	.28	.43				
70072: Rueter-----	0-5	10-25	60-80	5-20	1.20-1.40	14.00-42.00	0.07-0.20	0.0-2.9	2.0-4.0	.15	.37	3	7	38
	5-29	10-30	55-80	10-22	1.25-1.45	14.00-42.00	0.03-0.16	0.0-2.9	0.5-1.0	.10	.49			
	29-41	10-30	45-75	13-30	1.30-1.50	14.00-42.00	0.01-0.11	0.0-2.9	0.1-0.5	.05	.49			
	41-80	15-40	15-40	30-75	1.35-1.55	4.00-14.00	0.02-0.08	3.0-5.9	0.0-0.5	.05	.24			
Pomme-----	0-7	8-20	60-75	10-25	1.20-1.40	4.00-14.00	0.18-0.24	0.0-2.9	1.0-3.0	.37	.43	5	5	56
	7-24	7-25	45-70	15-35	1.30-1.50	4.00-14.00	0.10-0.22	0.0-2.9	0.2-1.0	.43	.49			
	24-58	10-25	40-60	28-40	1.35-1.55	4.00-14.00	0.01-0.18	3.0-5.9	0.1-0.8	.20	.32			
	58-80	8-20	15-40	50-70	1.30-1.50	4.00-14.00	0.01-0.06	3.0-5.9	0.1-0.5	.02	.17			
70073: Beemont-----	0-4	50-60	25-50	5-18	1.30-1.40	14.00-42.00	0.11-0.16	0.0-2.9	1.0-3.0	.20	.37	3	8	0
	4-10	50-60	35-45	5-18	1.30-1.45	14.00-42.00	0.11-0.20	0.0-2.9	0.5-1.0	.24	.49			
	10-44	2-20	10-30	60-85	1.35-1.45	0.10-1.40	0.06-0.11	6.0-8.9	0.1-0.5	.10	.17			
	44-49	2-25	30-55	35-60	1.40-1.55	0.10-1.40	0.04-0.11	6.0-8.9	0.1-0.3	.15	.32			
	49-80	---	---	---	---	0.01-0.42	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
70074: Townhole-----	0-5	6-20	65-85	5-20	1.30-1.50	4.00-14.00	0.19-0.22	0.0-2.9	2.0-4.0	.32	.43	3	5	56
	5-15	6-20	65-85	5-20	1.30-1.50	4.00-14.00	0.19-0.22	0.0-2.9	1.0-2.0	.32	.43			
	15-28	6-15	50-65	27-35	1.40-1.50	4.00-14.00	0.03-0.12	0.0-2.9	0.2-1.0	.10	.37			
	28-47	8-30	30-70	18-40	1.50-1.70	1.40-4.00	0.03-0.14	3.0-5.9	0.2-0.7	.15	.37			
	47-72	4-25	30-50	40-55	1.30-1.50	0.42-1.40	0.01-0.12	3.0-5.9	0.1-0.5	.05	.28			
	72-79	2-15	5-35	50-80	1.35-1.55	4.00-14.00	0.06-0.10	3.0-5.9	0.1-0.3	.15	.15			
	79-80	---	---	---	---	0.00-0.10	---	---	---	---	---			
70075: Waben-----	0-3	8-22	60-80	5-18	1.20-1.40	14.00-42.00	0.06-0.16	0.0-2.9	1.0-3.0	.17	.37	5	8	0
	3-8	7-20	60-80	8-18	1.25-1.45	14.00-42.00	0.06-0.14	0.0-2.9	0.5-2.0	.17	.43			
	8-60	8-25	30-70	15-35	1.30-1.50	14.00-42.00	0.05-0.15	0.0-2.9	0.2-1.0	.15	.43			
70076: Clarksville----	0-3	5-15	70-88	8-20	1.20-1.40	14.00-42.00	0.09-0.16	0.0-2.9	2.0-5.0	.15	.37	3	7	38
	3-15	5-15	65-80	8-18	1.25-1.45	14.00-42.00	0.09-0.16	0.0-2.9	0.5-2.0	.10	.43			
	15-25	5-15	50-75	15-30	1.30-1.50	14.00-42.00	0.03-0.13	0.0-2.9	0.2-1.0	.05	.43			
	25-80	1-15	40-60	40-50	1.35-1.55	4.00-14.00	0.04-0.08	3.0-5.9	0.0-0.5	.10	.32			
Noark-----	0-4	5-15	70-85	10-20	1.20-1.40	14.00-42.00	0.10-0.12	0.0-2.9	2.0-6.0	.10	.37	3	7	38
	4-10	5-15	70-85	8-18	1.25-1.45	14.00-42.00	0.10-0.14	0.0-2.9	1.0-2.0	.15	.43			
	10-20	5-15	45-80	10-40	1.30-1.50	14.00-42.00	0.03-0.10	0.0-2.9	0.2-1.0	.05	.43			
	20-80	3-15	10-40	55-85	1.35-1.55	4.00-14.00	0.02-0.08	3.0-5.9	0.1-0.5	.05	.28			
70077: Flagspring-----	0-5	7-17	60-80	8-20	1.20-1.40	14.00-42.00	0.03-0.10	0.0-2.9	2.0-5.0	.05	.37	3	8	0
	5-10	7-17	60-80	8-18	1.25-1.45	14.00-42.00	0.07-0.12	0.0-2.9	0.5-1.5	.10	.43			
	10-22	3-10	50-70	22-40	1.30-1.50	4.00-14.00	0.09-0.14	3.0-5.9	0.2-1.0	.15	.32			
	22-33	0-10	5-45	50-90	1.35-1.55	4.00-14.00	0.09-0.12	3.0-5.9	0.2-0.8	.28	.28			
	33-80	5-25	30-40	35-60	1.40-1.60	1.40-4.00	0.08-0.12	3.0-5.9	0.1-0.5	.32	.32			
70078: Goss-----	0-3	2-18	60-80	10-18	1.20-1.40	14.00-42.00	0.03-0.08	0.0-2.9	3.0-10	.02	.37	3	8	0
	3-21	5-25	60-80	10-18	1.25-1.45	14.00-42.00	0.02-0.16	0.0-2.9	0.8-2.0	.10	.55			
	21-32	10-34	40-55	18-30	1.30-1.50	14.00-42.00	0.02-0.10	0.0-2.9	0.1-2.0	.10	.37			
	32-80	5-25	5-35	54-80	1.35-1.55	4.00-14.00	0.02-0.08	3.0-5.9	0.1-0.5	.05	.10			
Rueter-----	0-3	5-22	55-80	8-20	1.20-1.40	14.00-42.00	0.04-0.10	0.0-2.9	3.0-6.0	.05	.37	4	8	0
	3-7	5-22	55-85	7-20	1.25-1.45	14.00-42.00	0.03-0.07	0.0-2.9	1.0-3.0	.05	.49			
	7-23	5-22	45-80	15-30	1.30-1.50	14.00-42.00	0.02-0.08	0.0-2.9	0.1-1.0	.05	.55			
	23-80	2-12	15-40	45-80	1.35-1.55	4.00-14.00	0.02-0.06	3.0-5.9	0.1-0.5	.02	.10			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
70079:														
Viburnum-----	0-3	4-15	65-85	8-20	1.20-1.40	4.00-14.00	0.16-0.24	0.0-2.9	2.0-6.0	.37	.37	4	5	56
	3-9	4-15	65-85	6-18	1.25-1.45	4.00-14.00	0.20-0.24	0.0-2.9	1.0-2.0	.37	.43			
	9-28	4-15	50-60	35-40	1.40-1.60	4.00-14.00	0.11-0.21	3.0-5.9	0.3-1.0	.32	.43			
	28-80	4-18	40-60	27-40	1.40-1.70	1.40-4.00	0.02-0.18	3.0-5.9	0.1-0.5	.10	.43			
Crackerneck----	0-4	5-20	70-90	5-15	1.20-1.40	14.00-42.00	0.10-0.15	0.0-2.9	1.0-6.0	.15	.37	3	7	38
	4-11	5-20	70-80	6-16	1.25-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.2-2.0	.17	.43			
	11-23	5-25	45-75	18-40	1.35-1.55	4.00-14.00	0.03-0.08	0.0-2.9	0.1-1.0	.10	.43			
	23-28	10-25	30-70	18-40	1.40-1.70	1.40-4.00	0.03-0.07	3.0-5.9	0.1-0.5	.05	.43			
	28-80	4-15	10-50	35-85	1.30-1.60	4.00-14.00	0.03-0.07	3.0-5.9	0.1-0.5	.10	.28			
70080:														
Noark-----	0-4	8-15	72-85	10-20	1.20-1.40	14.00-42.00	0.07-0.15	0.0-2.9	2.0-7.0	.10	.43	3	7	38
	4-10	8-15	65-85	8-18	1.25-1.45	14.00-42.00	0.08-0.16	0.0-2.9	1.0-2.0	.20	.55			
	10-20	6-15	50-80	10-40	1.30-1.50	14.00-42.00	0.03-0.12	0.0-2.9	0.2-1.0	.10	.64			
	20-80	2-15	5-35	54-85	1.35-1.55	4.00-14.00	0.02-0.08	3.0-5.9	0.0-0.5	.02	.10			
Clarksville----	0-3	8-15	70-85	8-20	1.20-1.40	14.00-42.00	0.06-0.17	0.0-2.9	2.0-6.0	.17	.49	3	7	38
	3-15	8-15	65-80	8-20	1.25-1.45	14.00-42.00	0.04-0.21	0.0-2.9	0.5-2.0	.17	.64			
	15-25	8-15	50-80	15-35	1.30-1.50	14.00-42.00	0.02-0.11	0.0-2.9	0.2-1.0	.10	.55			
	25-80	2-15	40-60	40-55	1.35-1.55	4.00-14.00	0.01-0.08	3.0-5.9	0.1-0.5	.10	.28			
Crackerneck, karst-----	0-4	5-12	70-90	5-15	1.30-1.50	14.00-42.00	0.09-0.14	0.0-2.9	2.0-8.0	.10	.37	3	7	38
	4-11	5-12	70-90	5-15	1.30-1.50	14.00-42.00	0.08-0.12	0.0-2.9	1.0-2.0	.10	.43			
	11-18	4-15	55-85	10-35	1.40-1.50	14.00-42.00	0.06-0.10	0.0-2.9	0.2-1.0	.10	.43			
	18-26	8-20	50-75	14-35	1.50-1.70	1.40-4.00	0.08-0.16	0.0-2.9	0.1-1.0	.28	.43			
	26-80	4-15	20-45	50-75	1.30-1.50	4.00-14.00	0.03-0.10	3.0-5.9	0.1-0.5	.10	.28			
70081:														
Rueter-----	0-4	10-28	50-80	5-18	1.20-1.40	14.00-42.00	0.03-0.13	0.0-2.9	1.0-4.0	.05	.43	3	8	0
	4-18	10-26	50-85	10-20	1.25-1.45	14.00-42.00	0.03-0.11	0.0-2.9	0.5-1.0	.10	.64			
	18-33	10-25	40-80	15-30	1.30-1.50	14.00-42.00	0.02-0.12	0.0-2.9	0.1-0.5	.05	.49			
	33-80	2-17	15-50	45-80	1.35-1.55	4.00-14.00	0.02-0.07	3.0-5.9	0.1-0.5	.02	.10			
Goss-----	0-9	6-20	60-80	10-20	1.20-1.40	14.00-42.00	0.03-0.11	0.0-2.9	2.0-8.0	.05	.37	3	8	0
	9-18	6-20	50-75	18-30	1.30-1.50	14.00-42.00	0.02-0.14	0.0-2.9	0.5-2.0	.20	.49			
	18-80	6-20	10-50	35-80	1.35-1.55	4.00-14.00	0.02-0.08	3.0-5.9	0.1-0.5	.10	.15			
Jollymill-----	0-5	8-20	60-85	5-15	1.20-1.40	14.00-42.00	0.12-0.21	0.0-2.9	1.0-4.0	.28	.55	3	6	48
	5-13	8-20	60-85	5-15	1.25-1.45	4.00-14.00	0.04-0.14	0.0-2.9	0.5-1.0	.17	.64			
	13-22	8-20	55-75	15-33	1.25-1.45	4.00-14.00	0.04-0.12	0.0-2.9	0.5-1.0	.17	.64			
	22-44	10-22	8-45	50-82	1.40-1.70	1.40-4.00	0.03-0.10	3.0-5.9	0.1-0.7	.20	.55			
	44-80	---	---	---	---	0.01-0.42	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
70082:														
Paintbrush-----	0-8	10-20	60-75	12-25	1.25-1.45	4.00-14.00	0.19-0.24	0.0-2.9	1.0-4.0	.43	.43	4	5	56
	8-14	10-25	35-75	14-27	1.30-1.50	4.00-14.00	0.15-0.24	0.0-2.9	1.0-2.5	.55	.55			
	14-29	8-35	35-65	20-35	1.30-1.55	4.00-14.00	0.13-0.22	3.0-5.9	1.0-2.0	.37	.43			
	29-37	10-40	30-60	27-35	1.50-1.70	0.42-1.40	0.01-0.09	3.0-5.9	0.5-1.0	.05	.37			
	37-80	5-30	20-50	35-70	1.30-1.50	4.00-14.00	0.02-0.11	3.0-5.9	0.0-0.5	.05	.32			
Friendly-----	0-9	5-15	60-85	10-20	1.20-1.50	4.00-14.00	0.19-0.24	0.1-2.9	1.0-3.0	.55	.55	3	5	56
	9-14	5-15	60-85	10-20	1.30-1.50	4.00-14.00	0.19-0.22	0.1-2.9	1.0-2.0	.64	.64			
	14-32	2-10	40-55	35-55	1.30-1.60	0.42-1.40	0.09-0.20	6.0-8.9	0.5-1.5	.28	.28			
	32-57	8-25	45-65	25-40	1.50-1.70	0.42-1.40	0.02-0.11	3.0-5.9	0.1-0.5	.32	.43			
	57-80	2-35	20-50	27-50	1.30-1.60	4.00-14.00	0.03-0.15	3.0-5.9	0.1-0.5	.10	.37			
70083:														
Eldorado-----	0-10	15-35	50-75	10-18	1.20-1.40	4.00-14.00	0.07-0.16	0.0-2.9	2.0-5.0	.10	.32	5	7	38
	10-31	10-40	40-65	18-35	1.30-1.50	4.00-14.00	0.04-0.11	3.0-5.9	0.3-2.0	.10	.28			
	31-80	10-50	10-35	40-60	1.35-1.55	4.00-14.00	0.02-0.08	3.0-5.9	0.2-0.5	.02	.10			
70150:														
Moko-----	0-7	10-35	20-50	18-35	1.20-1.40	4.00-14.00	0.03-0.12	0.1-2.9	2.0-12	.05	.24	1	8	0
	7-18	10-30	20-65	18-35	1.25-1.55	4.00-14.00	0.01-0.12	0.1-2.9	2.0-8.0	.05	.37			
	18-80	---	---	---	---	0.00-0.42	---	---	---	---	---			
Rock outcrop---	0-80	---	---	---	---	0.00-0.42	---	---	---	---	---	--	---	---
71253:														
Hartville-----	0-8	8-25	60-80	10-25	1.10-1.30	4.00-14.00	0.18-0.20	0.1-2.9	1.0-3.0	.32	.49	4	6	48
	8-14	5-20	45-70	20-40	1.20-1.40	4.00-14.00	0.17-0.24	3.0-5.9	0.1-0.5	.37	.55			
	14-31	5-15	30-50	40-60	1.20-1.50	0.42-1.40	0.07-0.13	6.0-9.0	0.1-0.5	.15	.24			
	31-80	10-32	20-50	40-60	1.20-1.50	1.40-4.00	0.01-0.10	6.0-9.0	0.1-0.5	.05	.24			
71255:														
Britwater-----	0-10	15-35	50-70	8-20	1.35-1.45	4.00-14.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.37	5	6	48
	10-20	15-30	50-70	16-27	1.35-1.45	4.00-14.00	0.13-0.21	0.0-2.9	0.1-1.0	.20	.49			
	20-68	15-35	35-55	20-27	1.30-1.45	4.00-14.00	0.10-0.16	3.0-5.9	0.1-0.5	.24	.37			
	68-80	10-25	40-55	27-40	1.25-1.40	4.00-14.00	0.08-0.17	3.0-5.9	0.1-0.5	.10	.32			
71256:														
Townhole-----	0-9	8-20	65-85	5-20	1.30-1.50	4.00-14.00	0.14-0.20	0.0-2.9	1.0-4.0	.37	.49	3	6	48
	9-17	6-20	65-85	5-20	1.30-1.50	4.00-14.00	0.09-0.18	0.0-2.9	0.5-1.0	.43	.64			
	17-27	8-20	55-80	12-25	1.40-1.50	14.00-42.00	0.07-0.15	0.0-2.9	0.2-0.8	.20	.64			
	27-50	8-25	30-70	20-40	1.50-1.70	0.42-1.40	0.03-0.21	3.0-5.9	0.2-0.7	.17	.49			
	50-80	8-30	15-60	30-70	1.40-1.60	4.00-14.00	0.01-0.19	3.0-5.9	0.1-0.5	.15	.43			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
71256: Aslinger-----	0-8	10-20	55-80	10-20	1.20-1.40	4.00-14.00	0.20-0.24	0.0-2.9	2.0-4.5	.37	.43	4	5	56
	8-29	5-18	45-70	20-35	1.25-1.45	4.00-14.00	0.16-0.22	0.0-2.9	0.2-1.0	.43	.49			
	29-64	8-30	45-70	18-35	1.50-1.70	1.40-4.00	0.01-0.12	0.0-2.9	0.2-0.3	.24	.43			
	64-80	20-40	25-50	18-35	1.30-1.60	4.00-14.00	0.02-0.12	0.0-2.9	0.2-0.3	.05	.37			
71257: Townhole, karst	0-5	8-20	65-85	5-20	1.30-1.50	4.00-14.00	0.19-0.23	0.0-2.9	2.0-4.0	.43	.43	3	5	56
	5-16	8-20	65-85	5-20	1.30-1.50	4.00-14.00	0.12-0.23	0.0-2.9	0.5-1.5	.49	.64			
	16-31	8-25	55-80	10-25	1.40-1.50	4.00-14.00	0.03-0.13	0.0-2.9	0.2-1.0	.17	.64			
	31-48	15-40	30-60	18-40	1.50-1.70	0.42-1.40	0.01-0.13	3.0-5.9	0.2-0.7	.05	.28			
	48-70	15-60	10-50	20-70	1.30-1.50	4.00-14.00	0.01-0.14	3.0-5.9	0.1-0.5	.02	.17			
	70-80	10-45	15-50	15-70	1.25-1.50	14.00-42.00	0.01-0.14	3.0-5.9	0.1-0.5	.05	.43			
Aslinger, karst	0-6	10-25	60-80	10-20	0.90-1.10	4.00-14.00	0.20-0.24	0.0-2.9	1.5-4.0	.43	.49	5	5	56
	6-30	8-20	50-70	20-35	1.25-1.45	4.00-14.00	0.12-0.22	0.0-2.9	0.2-1.0	.32	.49			
	30-37	12-45	45-70	12-27	1.50-1.70	1.40-4.00	0.01-0.12	0.0-2.9	0.2-0.3	.10	.49			
	37-68	20-45	20-50	18-40	1.30-1.60	4.00-14.00	0.02-0.12	0.0-2.9	0.2-0.3	.02	.20			
	68-80	15-55	10-45	35-55	1.30-1.60	4.00-14.00	0.01-0.11	3.0-5.9	0.2-0.3	.02	.15			
71258: Maplegrove----	0-11	11-22	60-80	12-18	1.20-1.40	4.00-14.00	0.21-0.24	0.0-2.9	1.5-4.0	.49	.49	3	5	56
	11-27	3-13	40-60	30-55	1.30-1.50	1.40-4.00	0.10-0.20	3.0-5.9	0.5-2.0	.24	.28			
	27-46	6-13	45-65	27-40	1.60-1.90	1.40-4.00	0.10-0.20	3.0-5.9	0.2-0.7	.17	.37			
	46-80	2-18	12-35	50-85	1.60-1.85	0.42-1.40	0.01-0.07	3.0-5.9	0.2-0.3	.05	.15			
Carl-----	0-13	3-10	40-60	27-40	1.40-1.60	0.42-1.40	0.21-0.23	6.0-8.9	2.0-5.0	.28	.28	5	8	0
	13-27	2-20	40-60	35-60	1.50-1.70	0.10-0.42	0.10-0.20	9.0-12.0	1.0-3.0	.32	.32			
	27-68	2-25	30-55	40-65	1.50-1.70	0.10-0.42	0.07-0.12	9.0-12.0	0.2-1.0	.32	.32			
	68-80	8-35	15-50	40-65	1.50-1.70	0.10-0.42	0.04-0.08	9.0-12.0	0.2-0.5	.10	.28			
71752: Bearthicket----	0-11	1-15	65-85	10-25	1.20-1.40	4.00-14.00	0.19-0.24	0.0-2.9	1.4-4.0	.43	.43	5	5	56
	11-19	1-15	65-85	10-25	1.20-1.45	4.00-14.00	0.19-0.22	0.0-2.9	0.5-2.0	.49	.55			
	19-67	4-15	55-80	15-30	1.20-1.50	4.00-14.00	0.19-0.22	0.0-2.9	0.5-1.5	.43	.49			
	67-80	10-35	45-65	21-40	1.30-1.50	4.00-14.00	0.02-0.16	0.0-2.9	0.2-1.0	.10	.37			
71753: Cedargap-----	0-30	10-20	40-65	27-35	1.20-1.45	4.00-14.00	0.03-0.08	0.0-2.9	2.0-6.0	.05	.28	5	8	0
	30-80	15-30	40-65	18-35	1.40-1.55	4.00-14.00	0.02-0.11	0.0-2.9	0.5-3.0	.05	.37			
Pinerun-----	0-9	8-22	60-75	12-22	1.30-1.45	4.00-14.00	0.18-0.23	0.0-2.9	1.2-4.0	.43	.49	5	5	56
	9-17	5-18	50-75	18-35	1.30-1.50	4.00-14.00	0.05-0.19	0.0-2.9	0.3-1.0	.32	.49			
	17-57	15-45	25-60	22-35	1.35-1.55	4.00-14.00	0.02-0.13	0.0-2.9	0.3-1.0	.02	.20			
	57-80	15-50	20-55	30-55	1.35-1.55	4.00-14.00	0.01-0.10	3.0-6.0	0.2-1.0	.02	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
71754:														
Waben-----	0-9	10-28	50-75	10-25	1.20-1.50	14.00-42.00	0.06-0.09	0.0-2.9	2.0-6.0	.02	.24	5	8	0
	9-24	10-25	50-80	8-22	1.30-1.60	14.00-42.00	0.04-0.16	0.0-2.9	0.5-2.0	.05	.43			
	24-80	10-30	40-70	15-35	1.30-1.60	14.00-42.00	0.03-0.12	0.0-2.9	0.2-1.0	.05	.37			
Cedargap-----	0-34	7-18	50-65	27-35	1.20-1.45	4.00-14.00	0.03-0.07	0.0-2.9	2.0-6.0	.05	.32	5	8	0
	34-80	10-25	40-65	18-35	1.40-1.55	4.00-14.00	0.02-0.13	0.0-2.9	0.5-2.0	.05	.43			
71755:														
Cedargap-----	0-26	25-50	40-50	10-20	1.20-1.45	4.00-14.00	0.03-0.09	0.0-2.9	2.0-6.0	.05	.32	5	8	0
	26-40	25-60	30-50	10-30	1.40-1.55	4.00-14.00	0.02-0.11	0.0-2.9	1.0-2.0	.05	.32			
	40-80	45-88	7-30	2-20	1.40-1.60	4.00-14.00	0.01-0.03	0.0-2.9	0.2-1.0	.02	.15			
Gladden-----	0-8	35-50	33-45	5-15	1.20-1.40	4.00-14.00	0.18-0.22	0.0-2.9	1.0-3.0	.28	.28	4	5	56
	8-58	30-75	20-50	5-20	1.25-1.70	4.00-14.00	0.11-0.19	0.0-2.9	0.1-2.0	.37	.43			
	58-80	70-95	2-25	1-10	1.45-1.85	42.00-140.00	0.00-0.10	0.0-2.9	0.0-0.2	.02	.10			
73116:														
Pomme-----	0-7	10-30	50-70	15-25	1.25-1.45	4.00-14.00	0.16-0.21	0.0-2.9	1.0-2.0	.32	.37	5	5	56
	7-19	10-25	45-60	22-35	1.30-1.50	4.00-14.00	0.14-0.21	0.0-2.9	0.2-1.0	.32	.37			
	19-57	8-25	40-55	28-40	1.35-1.55	4.00-14.00	0.08-0.14	3.0-5.9	0.1-0.5	.28	.32			
	57-86	4-20	15-35	45-75	1.35-1.55	4.00-14.00	0.04-0.14	3.0-5.9	0.1-0.5	.05	.10			
73120:														
Rueter-----	0-4	8-25	60-85	5-14	1.20-1.40	14.00-42.00	0.04-0.12	0.0-2.9	2.0-5.0	.10	.37	3	8	0
	4-11	6-20	65-85	8-15	1.25-1.45	14.00-42.00	0.08-0.14	0.0-2.9	0.5-1.0	.15	.43			
	11-44	5-20	50-75	15-30	1.30-1.50	14.00-42.00	0.04-0.14	0.0-2.9	0.1-0.5	.15	.43			
	44-60	2-15	15-50	40-80	1.35-1.55	4.00-14.00	0.03-0.06	3.0-5.9	0.1-0.5	.10	.28			
Gasconade-----	0-6	20-25	25-50	35-40	1.25-1.45	4.00-14.00	0.10-0.16	3.0-5.9	4.0-10	.15	.24	1	4	86
	6-12	20-33	20-45	33-40	1.30-1.50	1.40-4.00	0.05-0.12	3.0-5.9	2.0-6.0	.05	.24			
	12-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop---	0-80	---	---	---	---	0.00-0.42	---	---	---	---	---	--	---	---
73349:														
Boskydell-----	0-6	10-20	40-60	27-40	1.20-1.40	4.00-14.00	0.08-0.15	3.0-5.9	3.0-8.0	.10	.37	3	8	0
	6-16	5-25	20-40	45-75	1.35-1.55	4.00-14.00	0.03-0.11	3.0-5.9	0.5-3.0	.10	.28			
	16-69	2-15	40-60	40-55	1.45-1.65	0.04-1.40	0.03-0.08	6.0-8.9	0.2-1.0	.10	.32			
	69-80	---	---	---	---	0.04-1.40	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73350:														
Clinkenbeard---	0-4	25-40	35-50	15-27	1.30-1.40	14.00-42.00	0.08-0.14	1.0-2.9	4.0-8.0	.05	.24	2	8	0
	4-13	15-43	30-55	18-55	1.30-1.50	14.00-42.00	0.03-0.09	1.0-2.9	2.0-5.0	.02	.24			
	13-33	10-30	20-50	40-60	1.35-1.55	1.40-4.00	0.01-0.06	6.0-8.9	2.0-4.0	.05	.28			
	33-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
Gobbler-----	0-7	15-35	50-80	10-27	1.20-1.40	14.00-42.00	0.12-0.20	0.0-2.9	2.0-6.0	.20	.37	3	6	48
	7-16	15-35	50-75	16-32	1.25-1.45	14.00-42.00	0.09-0.12	0.0-2.9	0.5-2.0	.10	.43			
	16-38	15-40	10-45	35-50	1.30-1.50	4.00-14.00	0.03-0.13	3.0-5.9	0.1-1.0	.05	.32			
	38-43	2-25	10-40	45-80	1.35-1.55	4.00-14.00	0.04-0.13	6.0-8.9	0.1-0.8	.24	.28			
	43-50	4-10	55-70	27-35	1.35-1.55	4.00-14.00	0.03-0.10	0.0-2.9	0.0-0.5	.10	.32			
	50-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
73351:														
Sonsac-----	0-7	7-20	55-80	15-25	1.20-1.40	14.00-42.00	0.03-0.09	0.0-2.9	2.0-6.0	.05	.37	2	8	0
	7-15	5-20	55-80	15-27	1.25-1.50	14.00-42.00	0.03-0.09	0.0-2.9	0.5-2.0	.05	.43			
	15-22	5-20	50-70	22-40	1.25-1.50	14.00-42.00	0.03-0.09	0.0-2.9	0.2-1.0	.05	.43			
	22-28	6-20	40-50	40-60	1.30-1.60	4.00-14.00	0.01-0.04	6.0-8.9	0.1-0.5	.05	.32			
	28-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
Rueter-----	0-6	7-20	60-80	5-20	1.20-1.40	14.00-42.00	0.09-0.15	0.0-2.9	2.0-4.5	.10	.37	3	7	38
	6-13	7-20	60-85	10-25	1.25-1.45	14.00-42.00	0.04-0.14	0.0-2.9	0.5-1.5	.10	.43			
	13-32	10-35	50-75	12-30	1.30-1.50	4.00-14.00	0.03-0.07	0.0-2.9	0.1-0.5	.02	.43			
	32-80	12-33	15-50	27-70	1.35-1.55	4.00-14.00	0.03-0.06	3.0-5.9	0.1-0.5	.05	.37			
73352:														
Jollymill-----	0-4	8-25	60-85	5-15	1.20-1.40	14.00-42.00	0.04-0.16	0.0-2.9	3.0-8.0	.15	.37	3	7	38
	4-13	6-25	60-85	5-15	1.25-1.45	4.00-14.00	0.13-0.20	0.0-2.9	0.5-2.0	.20	.37			
	13-27	6-20	55-80	10-35	1.30-1.60	4.00-14.00	0.02-0.14	0.0-2.9	0.2-1.0	.05	.43			
	27-41	4-15	10-45	40-85	1.40-1.70	1.40-4.00	0.02-0.13	3.0-5.9	0.1-0.7	.28	.28			
	41-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
Bendavis-----	0-4	12-25	60-80	7-15	1.30-1.50	14.00-42.00	0.06-0.20	0.0-2.9	3.0-8.0	.05	.37	2	8	0
	4-10	10-20	65-80	7-15	1.20-1.40	14.00-42.00	0.03-0.13	0.0-2.9	0.5-2.0	.10	.43			
	10-23	12-28	45-75	8-30	1.30-1.50	14.00-42.00	0.03-0.14	0.0-2.9	0.2-1.0	.05	.43			
	23-33	5-20	50-70	8-35	1.30-1.60	4.00-14.00	0.03-0.13	0.0-2.9	0.1-0.7	.05	.43			
	33-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
73353:														
Hailey-----	0-10	10-25	60-85	5-15	1.20-1.40	42.00-141.00	0.05-0.10	0.0-2.9	2.0-6.0	.05	.37	3	8	0
	10-45	8-25	60-85	8-20	1.40-1.50	42.00-141.00	0.03-0.09	0.0-2.9	0.5-2.0	.05	.43			
	45-66	20-60	30-75	10-25	1.40-1.50	42.00-141.00	0.02-0.04	0.0-2.9	0.5-1.5	.05	.24			
	66-80	5-20	30-50	35-65	1.45-1.55	14.00-42.00	0.07-0.13	3.0-5.9	0.1-1.0	.15	.43			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73353: Sonsac-----	0-2	15-30	55-80	8-20	1.20-1.40	14.00-42.00	0.03-0.09	0.0-2.9	2.0-6.0	.05	.37	2	8	0
	2-11	12-30	55-80	8-30	1.25-1.50	14.00-42.00	0.03-0.09	0.0-2.9	0.5-2.0	.05	.43			
	11-16	6-25	55-77	10-29	1.30-1.50	14.00-42.00	0.03-0.14	0.0-2.9	0.2-1.0	.05	.43			
	16-26	2-20	20-50	40-75	1.30-1.60	4.00-14.00	0.02-0.06	3.0-5.9	0.1-1.0	.05	.28			
	26-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
73355: Moko-----	0-11	25-45	15-45	18-35	1.25-1.60	4.00-14.00	0.05-0.12	0.0-2.9	4.0-10	.05	.24	1	8	0
	11-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
Blueye-----	0-7	25-50	25-45	18-27	1.20-1.40	4.00-14.00	0.13-0.19	0.0-2.9	2.0-8.0	.15	.24	2	7	38
	7-10	15-45	40-60	21-35	1.25-1.45	4.00-14.00	0.06-0.14	0.0-2.9	1.0-4.0	.10	.24			
	10-25	6-20	25-50	40-65	1.30-1.50	0.42-1.40	0.08-0.16	6.0-8.9	0.5-3.0	.24	.28			
	25-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop---	0-80	---	---	---	---	0.00-0.42	---	---	---	---	---	--	---	---
73356: Moko-----	0-7	25-50	25-50	15-27	1.25-1.50	4.00-14.00	0.08-0.13	0.0-2.9	2.0-10	.24	.37	1	8	0
	7-12	10-35	30-70	18-35	1.25-1.60	4.00-14.00	0.03-0.14	0.0-2.9	1.0-8.0	.28	.43			
	12-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop---	0-80	---	---	---	---	0.00-0.01	0.00-0.00	---	---	---	---	--	---	---
73357: Moko-----	0-8	20-40	30-50	27-35	1.25-1.60	4.00-14.00	0.07-0.12	0.0-2.9	4.0-12	.05	.24	1	8	0
	8-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
Boskydell-----	0-5	2-20	40-70	28-40	1.20-1.40	4.00-14.00	0.11-0.21	3.0-5.9	3.0-8.0	.10	.28	3	8	0
	5-64	2-15	40-60	40-55	1.45-1.65	0.04-1.40	0.03-0.13	6.0-8.9	1.0-3.0	.10	.32			
	64-80	---	---	---	---	0.04-1.40	---	---	---	---	---			
Rock outcrop---	0-80	---	---	---	---	0.00-0.42	---	---	---	---	---	--	---	---
73358: Eldorado-----	0-10	15-35	50-75	10-20	1.20-1.40	4.00-14.00	0.08-0.16	0.0-2.9	2.0-4.0	.10	.32	5	7	38
	10-31	15-45	35-50	25-35	1.30-1.50	4.00-14.00	0.05-0.12	3.0-5.9	0.3-2.0	.10	.32			
	31-65	20-40	10-30	40-60	1.35-1.55	4.00-14.00	0.01-0.09	3.0-5.9	0.2-0.5	.05	.28			
	65-80	2-15	10-45	45-85	1.30-1.60	4.00-14.00	0.01-0.14	6.0-8.9	0.1-0.5	.15	.28			
Moko-----	0-8	24-35	35-50	18-35	1.20-1.40	4.00-14.00	0.07-0.13	0.1-2.9	2.0-10	.10	.24	1	8	0
	8-18	10-30	50-72	18-27	1.25-1.55	4.00-14.00	0.03-0.09	0.1-2.9	2.0-8.0	.05	.43			
	18-80	---	---	---	---	0.00-0.01	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
										Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73359:														
Bona-----	0-11	10-30	50-75	15-27	1.35-1.45	4.00-14.00	0.03-0.08	0.0-2.9	3.0-6.0	.05	.28	3	8	0
	11-19	20-40	40-50	20-40	1.35-1.45	4.00-14.00	0.03-0.07	3.0-5.9	0.5-2.0	.05	.32			
	19-35	5-30	10-45	50-70	1.35-1.50	4.00-14.00	0.03-0.08	3.0-5.9	0.5-2.0	.10	.28			
	35-65	2-15	5-45	50-85	1.35-1.55	1.40-4.00	0.07-0.16	6.0-8.9	0.5-1.0	.20	.28			
	65-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
Moko-----	0-8	10-30	30-50	18-27	1.20-1.40	4.00-14.00	0.07-0.13	0.1-2.9	2.0-12	.10	.24	1	8	0
	8-18	10-30	30-72	18-27	1.25-1.55	4.00-14.00	0.03-0.09	0.1-2.9	2.0-10	.05	.43			
	18-80	---	---	---	---	0.00-0.01	---	---	---	---	---			
74640:														
Hootentown----	0-7	5-20	55-80	10-20	1.20-1.40	4.00-14.00	0.19-0.21	0.0-2.9	1.0-3.0	.37	.37	5	5	56
	7-12	5-18	55-80	10-18	1.25-1.45	4.00-14.00	0.18-0.21	0.0-2.9	0.5-1.0	.32	.32			
	12-32	5-18	45-80	15-30	1.25-1.45	4.00-14.00	0.18-0.21	0.0-2.9	0.2-0.6	.28	.32			
	32-60	5-25	40-80	15-35	1.30-1.50	4.00-14.00	0.16-0.21	3.0-5.9	0.2-0.6	.28	.32			
99000.														
Pits, quarries														
99001.														
Water														
99003.														
Miscellaneous water														
99007.														
Dam														
99016:														
Water.														
Riverwash.														

Table 19.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Salinity
	In	meq/100 g	meq/100 g	pH	mmhos/cm
70067: Pembroke, karst-----	0-8	10-25	10-25	5.1-7.3	0
	8-15	10-25	10-25	5.1-7.3	0
	15-28	10-25	10-25	5.1-6.5	0
	28-69	10-40	10-40	5.1-6.5	0
	69-80	---	---	---	---
70068: Bendavis, karst-----	0-4	6.0-15	8.0-20	4.0-6.5	0
	4-31	3.0-12	3.0-15	3.5-5.5	0.0-2.0
	31-80	---	---	---	---
Jollymill, karst-----	0-3	5.0-25	8.0-30	4.5-6.5	0
	3-9	5.0-15	5.0-12	4.5-6.5	0
	9-19	5.0-20	5.0-24	3.5-5.5	0
	19-43	8.0-40	9.0-45	3.5-5.0	0
	43-80	---	---	---	---
Crackerneck, karst-----	0-4	5.0-35	5.0-40	4.5-6.5	0
	4-13	5.0-20	2.2-11	4.5-6.5	0
	13-25	5.0-20	2.2-11	4.5-6.5	0
	25-39	2.0-15	5.0-20	4.5-6.0	0
	39-51	5.0-20	5.0-20	4.5-5.5	0
	51-68	10-30	10-30	3.5-5.0	0
	68-80	---	---	---	---
70069: Jollymill, karst-----	0-2	10-40	5.0-30	4.5-6.5	---
	2-5	5.0-25	8.0-30	4.5-6.5	0
	5-13	5.0-15	5.0-12	4.5-6.5	0
	13-22	5.0-20	5.0-24	3.5-5.5	0
	22-51	8.0-40	9.0-45	3.5-5.0	0
	51-80	---	---	---	---
Crackerneck, karst-----	0-5	5.0-20	5.0-20	4.5-6.5	0
	5-10	5.0-20	5.0-20	4.5-6.5	0
	10-22	2.0-20	2.0-20	4.5-6.0	0
	22-42	5.0-20	5.0-20	4.5-5.5	0
	42-80	10-30	10-30	3.5-5.0	0
70070: Crackerneck, karst-----	0-5	5.0-20	5.0-20	4.5-6.5	0.0-2.0
	5-9	5.0-20	5.0-20	4.5-6.5	0.0-2.0
	9-23	2.0-15	5.0-20	4.5-6.0	0.0-2.0
	23-42	5.0-20	5.0-20	4.5-5.5	0.0-2.0
	42-68	10-30	10-30	3.5-5.0	0.0-2.0
	68-80	---	---	---	---
Hailey, karst	0-6	5.0-30	5.0-40	5.1-7.3	0.0-2.0
	6-14	5.0-30	5.0-40	5.1-7.3	0.0-2.0
	14-60	4.0-15	5.0-15	4.5-6.0	0.0-2.0
	60-80	12-32	15-40	4.5-6.0	0.0-2.0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Salinity
	In	meq/100 g	meq/100 g	pH	mmhos/cm
70071:					
Sowcoon-----	0-17	5.0-15	10-32	4.5-7.3	0
	17-33	5.0-30	8.0-35	4.5-6.5	0
	33-45	5.0-20	8.0-28	4.5-5.5	0
	45-80	5.0-25	8.0-28	4.5-5.5	0
Viburnum-----	0-4	8.0-20	10-25	4.5-7.3	0
	4-7	6.0-15	10-20	4.5-7.3	0
	7-24	8.0-20	10-25	4.5-6.0	0
	24-42	6.0-15	10-20	4.5-5.5	0
	42-80	8.0-20	10-20	4.5-5.0	0
70072:					
Rueter-----	0-5	6.0-15	7.0-18	4.5-6.5	0
	5-29	4.0-10	5.0-12	4.5-6.5	0
	29-41	6.0-12	7.0-14	4.5-6.5	0
	41-80	10-26	12-32	4.5-6.5	0
Pomme-----	0-7	5.0-12	6.0-15	5.6-7.3	0
	7-24	5.0-16	6.0-20	5.6-7.3	0
	24-58	8.0-16	10-20	5.1-6.5	0
	58-80	10-30	5.0-20	4.5-6.5	0
70073:					
Beemont-----	0-4	3.0-12	2.0-10	4.5-6.5	0
	4-10	2.0-18	1.0-9.0	3.6-6.0	0
	10-44	15-30	12-26	4.5-5.5	0
	44-49	10-20	12-24	4.5-5.5	0
	49-80	---	---	---	---
70074:					
Townhole-----	0-5	5.0-15	5.0-20	5.1-7.3	0
	5-15	5.0-15	5.0-20	5.1-7.3	0
	15-28	4.0-18	5.0-20	4.5-6.0	0
	28-47	5.0-15	5.0-20	3.5-6.0	0
	47-72	8.0-20	8.0-25	3.5-6.0	0
	72-79	5.0-25	6.0-28	4.5-6.0	0
	79-80	---	---	---	---
70075:					
Waben-----	0-3	5.0-15	7.0-17	5.1-7.3	0
	3-8	5.0-15	7.0-17	5.1-6.5	0
	8-60	5.0-15	7.0-17	5.1-6.5	0
70076:					
Clarksville---	0-3	8.0-24	10-30	4.5-6.5	0
	3-15	4.0-16	5.0-20	4.5-6.5	0
	15-25	4.0-16	5.0-20	3.5-5.5	0
	25-80	12-32	15-40	3.5-5.5	0
Noark-----	0-4	8.0-24	10-30	4.5-6.5	0
	4-10	4.0-16	5.0-20	4.5-6.5	0
	10-20	4.0-16	5.0-20	3.5-5.5	0
	20-80	16-32	20-40	3.5-5.5	0
70077:					
Flagspring---	0-5	6.0-12	8.0-15	4.5-6.5	0
	5-10	3.0-8.0	4.0-10	4.5-6.5	0
	10-22	4.0-15	5.0-18	4.5-5.0	0
	22-33	10-28	12-35	4.5-5.5	0
	33-80	4.0-20	5.0-25	3.5-5.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Salinity
	In	meq/100 g	meq/100 g	pH	mmhos/cm
70078:					
Goss-----	0-3	8.0-20	10-25	4.5-6.5	0
	3-21	5.0-15	6.0-18	4.5-6.5	0
	21-32	5.0-15	6.0-18	4.5-6.5	0
	32-80	10-20	9.0-25	4.5-6.5	0
Rueter-----	0-3	10-25	12-28	4.5-7.3	0
	3-7	4.0-12	5.0-15	4.5-7.3	0
	7-23	2.0-12	3.0-15	4.5-6.5	0
	23-80	10-26	12-32	4.5-6.5	0
70079:					
Viburnum-----	0-3	8.0-20	10-25	4.5-7.3	0
	3-9	6.0-15	10-20	4.5-7.3	0
	9-28	8.0-20	10-25	4.5-6.5	0
	28-80	8.0-20	10-20	4.5-5.0	0
Crackerneck---	0-4	5.0-35	5.0-40	4.5-6.5	0
	4-11	5.0-20	2.2-11	4.5-6.5	0
	11-23	2.0-18	5.0-20	4.5-6.0	0
	23-28	5.0-20	5.0-20	4.5-5.5	0
	28-80	10-30	10-30	3.5-5.0	0
70080:					
Noark-----	0-4	8.0-24	10-30	4.5-6.5	0
	4-10	4.0-16	5.0-20	4.5-6.5	0
	10-20	4.0-16	5.0-20	3.5-5.5	0
	20-80	16-32	20-40	3.5-5.5	0
Clarksville---	0-3	8.0-24	10-30	4.5-6.5	0
	3-15	4.0-16	5.0-20	4.5-6.5	0
	15-25	4.0-16	5.0-20	3.5-5.5	0
	25-80	12-32	15-40	3.5-5.5	0
Crackerneck, karst-----	0-4	5.0-20	5.0-20	4.5-6.5	0
	4-11	5.0-20	5.0-20	4.5-6.5	0
	11-18	2.0-20	2.0-20	4.5-6.0	0
	18-26	5.0-20	5.0-20	4.5-5.5	0
	26-80	10-30	10-30	3.5-5.0	0
70081:					
Rueter-----	0-4	6.0-15	8.0-20	4.5-6.5	0
	4-18	4.0-10	5.0-12	4.5-6.5	0
	18-33	2.0-12	4.0-15	4.5-6.5	0
	33-80	8.0-25	12-32	4.5-6.5	0
Goss-----	0-9	8.0-20	10-25	4.5-6.5	0
	9-18	5.0-15	6.0-18	4.5-6.5	0
	18-80	7.0-20	9.0-25	4.5-6.5	0
Jollymill-----	0-5	5.0-25	8.0-30	4.5-6.5	0
	5-13	5.0-15	5.0-12	4.5-6.5	0
	13-22	5.0-15	5.0-12	4.5-6.5	0
	22-44	6.0-40	7.0-45	3.5-5.0	0
	44-80	---	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Salinity
	In	meq/100 g	meq/100 g	pH	mmhos/cm
70082:					
Paintbrush----	0-8	10-20	12-24	5.1-7.3	0
	8-14	8.0-15	10-18	4.5-6.5	0
	14-29	12-23	14-28	4.5-6.5	0
	29-37	10-20	12-24	4.5-6.5	0
	37-80	10-25	12-30	5.1-6.5	0
Friendly-----	0-9	8.0-20	10-24	5.6-7.3	0
	9-14	6.0-18	7.0-22	5.1-7.3	0
	14-32	20-28	24-34	5.1-6.5	0
	32-57	12-25	14-30	5.1-6.5	0
	57-80	10-25	12-30	5.1-6.5	0
70083:					
Eldorado-----	0-10	7.0-25	8.0-30	5.6-7.3	0
	10-31	7.0-25	8.0-30	5.6-6.5	0
	31-80	13-50	16-60	5.6-6.5	0
70150:					
Moko-----	0-7	15-40	5.0-20	5.6-8.4	0
	7-18	15-40	5.0-20	5.6-8.4	0
	18-80	---	---	---	---
Rock outcrop.					
71253:					
Hartville-----	0-8	8.0-16	9.0-20	5.6-7.3	0
	8-14	8.0-16	9.0-20	5.6-7.3	0
	14-31	12-32	15-40	4.5-6.5	0
	31-80	8.0-24	10-30	4.5-6.5	0
71255:					
Britwater-----	0-10	5.0-20	5.0-15	4.5-6.5	0
	10-20	5.0-20	5.0-15	4.5-6.5	0
	20-68	5.0-20	5.0-25	4.5-6.0	0
	68-80	5.0-20	5.0-25	4.5-6.0	0
71256:					
Townhole-----	0-9	5.0-15	5.0-20	5.1-7.3	0
	9-17	5.0-10	5.0-15	5.1-7.3	0
	17-27	4.0-10	5.0-20	4.5-6.0	0
	27-50	5.0-15	5.0-20	3.5-6.0	0
	50-80	8.0-20	8.0-25	3.5-6.0	0
Aslinger-----	0-8	8.0-15	3.0-20	4.5-6.5	0
	8-29	9.0-20	6.0-20	4.5-6.5	0
	29-64	6.0-15	4.0-15	4.5-5.5	0
	64-80	5.0-15	4.0-15	4.5-5.5	0
71257:					
Townhole, karst-----	0-5	5.0-15	5.0-20	5.1-7.3	0
	5-16	5.0-10	5.0-15	5.1-7.3	0
	16-31	4.0-10	5.0-20	4.5-6.0	0
	31-48	5.0-15	5.0-20	3.5-6.0	0
	48-70	8.0-20	8.0-25	3.5-6.0	0
	70-80	5.0-25	6.0-25	4.5-6.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Salinity
	In	meq/100 g	meq/100 g	pH	mmhos/cm
71257: Aslinger, karst-----	0-6	6.0-15	3.0-15	4.5-6.5	0
	6-30	7.0-15	6.0-15	4.5-6.5	0
	30-37	6.0-15	4.0-15	4.5-5.5	0
	37-68	5.0-15	4.0-15	4.5-5.5	0
	68-80	9.0-25	7.0-25	3.5-5.5	0
71258: Maplegrove----	0-11	11-17	---	5.1-7.3	0
	11-27	17-33	---	5.1-7.3	0
	27-46	14-43	---	6.1-7.8	0
	46-80	18-53	---	6.6-7.8	0
Carl-----	0-13	16-39	---	5.6-7.8	0
	13-27	27-42	---	6.1-7.8	0
	27-68	22-49	---	6.6-7.8	0
	68-80	19-41	---	6.6-7.8	0
71752: Bearthicket---	0-11	5.0-14	6.0-17	5.1-7.3	0
	11-19	4.0-12	5.0-15	5.1-7.3	0
	19-67	4.0-12	5.0-15	5.1-6.5	0
	67-80	5.0-14	6.0-17	5.1-6.5	0
71753: Cedargap-----	0-30	12-30	12-30	5.6-7.8	0
	30-80	12-25	12-25	5.6-7.8	0
Pinerun-----	0-9	8.0-18	10-20	5.1-7.3	0
	9-17	8.0-18	10-20	5.1-7.3	0
	17-57	10-18	10-23	5.1-7.3	0
	57-80	10-25	15-30	5.6-7.3	0
71754: Waben-----	0-9	5.0-25	6.0-30	5.1-6.5	0
	9-24	5.0-15	6.0-18	4.5-6.5	0
	24-80	5.0-20	6.0-22	4.5-6.5	0
Cedargap-----	0-34	12-30	12-30	5.6-7.8	0
	34-80	12-25	12-25	5.6-7.8	0
71755: Cedargap-----	0-26	12-30	12-30	5.6-7.8	0
	26-40	10-25	12-25	5.6-7.8	0
	40-80	4.0-10	5.0-12	5.6-7.8	0
Gladden-----	0-8	5.0-15	6.0-18	5.6-7.3	0
	8-58	5.0-15	6.0-18	5.6-7.3	0
	58-80	1.0-8.0	1.0-10	5.1-7.3	0
73116: Pomme-----	0-7	5.0-12	5.0-10	5.6-7.3	0
	7-19	8.0-16	5.0-15	5.6-7.3	0
	19-57	8.0-16	5.0-15	5.1-6.5	0
	57-86	10-30	10-25	4.5-6.5	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Salinity
	In	meq/100 g	meq/100 g	pH	mmhos/cm
<b>73120:</b>					
Rueter-----	0-4	6.0-15	---	4.5-6.5	0
	4-11	4.0-10	---	4.5-6.5	0
	11-44	2.0-12	---	4.5-6.5	0
	44-60	12-32	---	4.5-6.5	0
<b>Gasconade-----</b>					
	0-6	15-50	25-45	6.1-7.8	0
	6-12	15-40	25-40	6.1-7.8	0
	12-80	---	---	---	---
<b>Rock outcrop.</b>					
<b>73349:</b>					
Boskydell-----	0-6	25-40	30-45	6.1-7.3	0
	6-16	24-35	25-40	6.1-7.8	0
	16-69	17-32	20-38	6.6-8.4	0
	69-80	---	---	---	---
<b>73350:</b>					
Clinkenbeard--	0-4	25-50	30-60	6.1-7.8	0
	4-13	20-45	24-54	6.1-7.8	0
	13-33	25-40	30-48	6.6-8.4	0
	33-80	---	---	---	---
<b>Gobbler-----</b>					
	0-7	10-25	12-30	5.1-7.3	0
	7-16	7.0-20	10-25	5.1-7.3	0
	16-38	10-30	12-36	5.1-7.3	0
	38-43	15-45	18-54	5.1-7.8	0
	43-50	---	---	5.6-7.8	---
	50-80	---	---	---	---
<b>73351:</b>					
Sonsac-----	0-7	8.0-30	10-35	5.1-7.3	0
	7-15	8.0-40	10-50	5.1-7.3	0
	15-22	8.0-40	10-50	5.1-7.3	0
	22-28	12-50	14-60	5.6-7.3	0
	28-80	---	---	---	---
<b>Rueter-----</b>					
	0-6	6.0-15	8.0-20	4.5-6.5	0
	6-13	4.0-10	5.0-12	4.5-6.5	0
	13-32	2.0-12	4.0-15	4.5-6.5	0
	32-80	8.0-25	12-32	4.5-6.5	0
<b>73352:</b>					
Jollymill-----	0-4	5.0-25	8.0-30	4.5-6.5	0
	4-13	4.0-15	5.0-12	4.5-6.5	0
	13-27	5.0-20	5.0-24	3.5-5.5	0
	27-41	8.0-40	9.0-45	3.5-5.0	0
	41-80	---	---	---	---
<b>Bendavis-----</b>					
	0-4	6.0-18	8.0-22	4.0-6.5	0
	4-10	3.0-10	2.0-8.0	4.5-6.0	0
	10-23	3.0-12	3.0-15	3.5-5.5	0
	23-33	5.0-15	6.0-18	3.5-5.5	0
	33-80	---	---	---	---
<b>73353:</b>					
Hailey-----	0-10	5.0-30	5.0-40	5.1-7.3	0
	10-45	4.0-10	5.0-20	4.5-6.0	0
	45-66	4.0-15	5.0-15	4.5-7.8	0
	66-80	12-32	15-40	4.5-7.8	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Salinity
	In	meq/100 g	meq/100 g	pH	mmhos/cm
73353:					
Sonsac-----	0-2	8.0-30	10-35	5.1-7.3	0
	2-11	6.0-40	8.0-50	5.1-7.3	0
	11-16	3.0-12	3.0-15	5.1-7.3	0
	16-26	12-50	14-60	5.6-7.3	0
	26-80	---	---	---	---
73355:					
Moko-----	0-11	15-40	---	6.6-8.2	0
	11-80	---	---	---	---
Blueye-----	0-7	12-35	14-42	6.1-8.4	0
	7-10	12-30	14-36	6.1-8.4	0
	10-25	25-40	30-48	6.1-8.4	0
	25-80	---	---	---	---
Rock outcrop.					
73356:					
Moko-----	0-7	15-30	12-25	6.6-7.8	0
	7-12	15-30	12-25	6.6-7.8	0
	12-80	---	---	---	---
Rock outcrop.					
73357:					
Moko-----	0-8	15-40	---	6.6-8.2	0
	8-80	---	---	---	---
Boskydell----	0-5	25-40	30-45	6.1-7.8	0
	5-64	17-32	20-38	6.6-8.4	0
	64-80	---	---	---	---
Rock outcrop.					
73358:					
Eldorado-----	0-10	7.0-25	8.0-30	5.6-7.3	0
	10-31	7.0-25	8.0-30	5.6-6.5	0
	31-65	13-50	16-60	5.6-6.5	0
	65-80	14-50	16-60	4.5-7.3	0
Moko-----	0-8	15-40	18-48	5.6-7.8	0
	8-18	15-40	18-48	6.5-7.8	0
	18-80	---	---	---	---
73359:					
Bona-----	0-11	8.0-20	10-24	5.1-6.5	0
	11-19	6.0-16	8.0-20	5.1-6.5	0
	19-35	8.0-30	10-36	4.5-6.5	0
	35-65	12-40	15-48	6.5-7.8	0
	65-80	---	---	---	---
Moko-----	0-8	15-40	18-48	5.6-8.4	0
	8-18	15-40	18-48	6.5-8.4	0
	18-80	---	---	---	---
74640:					
Hootentown----	0-7	5.0-15	8.0-20	5.6-6.5	0
	7-12	5.0-15	8.0-20	5.6-6.5	0
	12-32	5.0-15	8.0-20	5.6-6.5	0
	32-60	5.0-15	8.0-20	5.6-6.5	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Salinity
	In	meq/100 g	meq/100 g	pH	mmhos/cm
99000. Pits, quarries					
99001. Water					
99003. Miscellaneous water					
99007. Dam					
99016: Water.  Riverwash.					

Table 20.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70067: Pembroke, karst-----	B	Negligible	January	---	---	0.2-0.8	Very brief	Frequent	---	None
			February	---	---	0.2-0.8	Very brief	Frequent	---	None
			March	---	---	0.2-0.8	Very brief	Frequent	---	None
			April	---	---	0.2-0.8	Very brief	Frequent	---	None
			May	---	---	0.2-0.8	Very brief	Frequent	---	None
			June	---	---	0.2-0.8	Very brief	Occasional	---	None
			July	---	---	0.2-0.8	Very brief	Occasional	---	None
			August	---	---	0.2-0.8	Very brief	Occasional	---	None
			September	---	---	0.2-0.8	Very brief	Occasional	---	None
			October	---	---	0.2-0.8	Very brief	Occasional	---	None
			November	---	---	0.2-0.8	Very brief	Frequent	---	None
			December	---	---	0.2-0.8	Very brief	Frequent	---	None
70068: Bendavis, karst-----	C	High	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70068: Jollymill, karst-----	C	Medium	January	1.5-3.0	3.3-5.0	---	---	None	---	None
			February	1.5-3.0	3.3-5.0	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-3.0	3.3-5.0	---	---	None	---	None
Crackerneck, karst-----	C	Medium	January	1.5-3.0	5.0-6.7	---	---	None	---	None
			February	1.5-3.0	5.0-6.7	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
70069: Jollymill, karst-----	C	Low	January	1.5-3.3	3.3-5.0	---	---	None	---	None
			February	1.5-3.3	3.3-5.0	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit Ft	Lower limit Ft	Surface water depth Ft	Duration	Frequency	Duration	Frequency
70069: Crackerneck, karst-----	C	Medium	January	1.5-3.0	2.5-5.8	---	---	None	---	None
			February	1.5-3.0	2.5-5.8	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
70070: Crackerneck, karst-----	C	Medium	January	1.5-3.0	2.5-5.8	---	---	None	---	None
			February	1.5-3.0	2.5-5.8	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Hailey, karst-----	A	Very low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70071: Sowcoon-----	D	Negligible	January	1.0-2.0	5.0-6.7	0.1-0.5	Brief	Frequent	---	None
			February	0.5-1.5	5.0-6.7	0.1-0.5	Brief	Frequent	---	None
			March	0.5-1.5	5.0-6.7	0.1-0.5	Brief	Frequent	---	None
			April	0.5-1.5	5.0-6.7	0.1-0.5	Brief	Frequent	---	None
			May	---	---	0.1-0.5	Brief	Frequent	---	None
			June	---	---	0.1-0.5	Brief	Frequent	---	None
			July	---	---	0.1-0.5	Brief	Frequent	---	None
			August	---	---	0.1-0.5	Brief	Frequent	---	None
			September	---	---	0.1-0.5	Brief	Frequent	---	None
			October	---	---	0.1-0.5	Brief	Frequent	---	None
			November	0.5-1.5	5.0-6.7	0.1-0.5	Brief	Frequent	---	None
			December	0.5-1.5	5.0-6.7	0.1-0.5	Brief	Frequent	---	None
Viburnum-----	C	Low	January	1.5-2.5	1.7-5.7	---	---	None	---	None
			February	1.5-2.5	1.7-5.7	---	---	None	---	None
			March	1.5-2.5	1.7-5.7	---	---	None	---	None
			April	1.5-2.5	1.7-5.7	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	1.5-2.5	1.7-5.7	---	---	None	---	None
			December	1.5-2.5	1.7-5.7	---	---	None	---	None
70072: Rueter-----	A	Low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70072: Pomme-----	B	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
70073: Beemont-----	C	Very high	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
70074: Townhole-----	C	Low	January	1.5-3.3	2.9-6.7	---	---	None	---	None
			February	1.5-3.3	2.9-6.7	---	---	None	---	None
			March	1.5-3.3	2.9-6.7	---	---	None	---	None
			April	1.5-3.3	2.9-6.7	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	1.5-3.3	2.9-6.7	---	---	None	---	None
			December	1.5-3.3	2.9-6.7	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70075: Waben-----	A	Low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
70076: Clarksville-----	B	Low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Noark-----	B	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70077: Flagspring-----	B	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
70078: Goss-----	C	Low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Rueter-----	B	Low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70079: Viburnum-----	C	Low	January	1.5-2.5	1.7-5.7	---	---	None	---	None
			February	1.5-2.5	1.7-5.7	---	---	None	---	None
			March	1.5-2.5	1.7-5.7	---	---	None	---	None
			April	1.5-2.5	1.7-5.7	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	1.5-2.5	1.7-5.7	---	---	None	---	None
			December	1.5-2.5	1.7-5.7	---	---	None	---	None
Crackerneck-----	C	Medium	January	1.5-3.3	3.3-6.7	---	---	None	---	None
			February	1.5-3.3	3.3-6.7	---	---	None	---	None
			March	1.5-3.3	3.3-6.7	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.3-3.3	3.3-6.7	---	---	None	---	None
70080: Noark-----	B	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Surface water depth	Ponding		Flooding	
				Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70080: Clarksville-----	B	Low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Crackerneck, karst-----	C	Medium	January	1.3-3.3	3.3-6.7	---	---	None	---	None
			February	1.3-3.3	3.3-6.7	---	---	None	---	None
			March	1.3-3.3	3.3-6.7	---	---	None	---	None
			April	1.3-3.3	3.3-6.7	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	1.3-3.3	3.3-6.7	---	---	None	---	None
			December	1.0-3.3	3.3-6.7	---	---	None	---	None
70081: Rueter-----	B	High	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70081: Goss-----	B	High	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
			Jollymill-----	C	Very high	January	1.5-3.3	3.3-5.0	---	---
February	1.5-3.3	3.3-5.0				---	---	None	---	None
March	1.5-3.3	3.3-5.0				---	---	None	---	None
April	---	---				---	---	None	---	None
May	---	---				---	---	None	---	None
June	---	---				---	---	None	---	None
July	---	---				---	---	None	---	None
August	---	---				---	---	None	---	None
September	---	---				---	---	None	---	None
October	---	---				---	---	None	---	None
November	---	---				---	---	None	---	None
December	1.5-3.3	3.3-5.0				---	---	None	---	None
70082: Paintbrush-----	C	Medium				January	1.5-2.5	2.5-3.3	---	---
			February	1.5-2.5	2.5-3.3	---	---	None	---	None
			March	1.5-2.2	2.5-3.3	---	---	None	---	None
			April	1.5-2.5	2.5-3.3	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-2.5	2.5-3.3	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Surface water depth	Ponding		Flooding	
				Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70082: Friendly-----	D	Negligible	January	1.0-2.0	1.0-3.3	---	---	None	---	None
			February	1.0-2.0	1.0-3.3	---	---	None	---	None
			March	1.0-2.0	1.0-3.3	---	---	None	---	None
			April	1.0-2.0	1.0-3.3	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.0-2.0	1.0-3.3	---	---	None	---	None
70083: Eldorado-----	B	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
70150: Moko-----	D	Very high	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
70150: Rock outcrop-----	D	Very high	Jan-Dec	---	---	---	---	---	---	---
71253: Hartville-----	D	Very high	January	1.0-2.5	>6.0	---	---	None	---	None
			February	1.0-2.5	>6.0	---	---	None	---	None
			March	1.0-2.5	>6.0	---	---	None	---	None
			April	1.0-2.5	>6.0	---	---	None	---	None
			May	1.0-2.5	>6.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	1.0-2.5	>6.0	---	---	None	---	None
			December	1.0-2.5	>6.0	---	---	None	---	None
71255: Britwater-----	B	Low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
71256: Townhole-----	C	Medium	January	1.5-3.3	3.3-6.7	---	---	None	---	None
			February	1.5-3.3	3.3-6.7	---	---	None	---	None
			March	1.5-3.3	3.3-6.7	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-3.3	3.3-6.7	---	---	None	---	None
Aslinger-----	C	Medium	January	1.5-2.7	2.0-5.0	---	---	None	---	None
			February	1.5-2.7	2.0-5.0	---	---	None	---	None
			March	1.5-2.7	2.0-5.0	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-2.7	2.0-5.0	---	---	None	---	None
71257: Townhole, karst-----	C	Low	January	1.5-3.3	3.3-6.7	---	---	None	---	None
			February	1.5-3.3	3.3-6.7	---	---	None	---	None
			March	1.5-3.3	3.3-6.7	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-3.3	3.3-6.7	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
71257: Aslinger, karst-----	C	Low	January	1.5-2.7	2.0-5.4	---	---	None	---	None
			February	1.5-2.7	2.0-5.4	---	---	None	---	None
			March	1.5-2.7	2.0-5.4	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-2.7	2.0-5.4	---	---	None	---	None
71258: Maplegrove-----	C	Low	January	2.5-3.5	>6.0	---	---	None	---	None
			February	2.5-3.5	>6.0	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	2.5-3.5	>6.0	---	---	None	---	None
Carl-----	D	High	January	0.0-1.5	3.0-3.0	---	---	None	Very brief	Rare
			February	0.0-1.5	3.0-3.0	---	---	None	Very brief	Rare
			March	0.0-1.5	3.0-3.0	---	---	None	Brief	Rare
			April	0.0-1.5	3.0-3.0	---	---	None	Brief	Rare
			May	0.0-1.5	3.0-3.0	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	0.0-1.5	3.0-3.0	---	---	None	Brief	Rare
			December	0.0-1.5	3.0-3.0	---	---	None	Very brief	Rare

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit Ft	Lower limit Ft	Surface water depth Ft	Duration	Frequency	Duration	Frequency
71752: Bearthicket-----	B	Low	January	---	---	---	---	None	Very brief	Occasional
			February	---	---	---	---	None	Very brief	Occasional
			March	---	---	---	---	None	Brief	Occasional
			April	---	---	---	---	None	Brief	Occasional
			May	---	---	---	---	None	Brief	Occasional
			June	---	---	---	---	None	Brief	Occasional
			July	---	---	---	---	None	Brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Occasional
			October	---	---	---	---	None	Brief	Occasional
			November	---	---	---	---	None	Brief	Occasional
			December	---	---	---	---	None	Very brief	Occasional
71753: Cedargap-----	B	Low	January	---	---	---	---	None	Very brief	Frequent
			February	---	---	---	---	None	Very brief	Frequent
			March	---	---	---	---	None	Very brief	Frequent
			April	---	---	---	---	None	Very brief	Frequent
			May	---	---	---	---	None	Very brief	Frequent
			June	---	---	---	---	None	Very brief	Frequent
			July	---	---	---	---	None	Very brief	Frequent
			August	---	---	---	---	None	Very brief	Frequent
			September	---	---	---	---	None	Very brief	Frequent
			October	---	---	---	---	None	Very brief	Frequent
			November	---	---	---	---	None	Very brief	Frequent
			December	---	---	---	---	None	Very brief	Frequent
Pinerun-----	B	Low	January	---	---	---	---	None	Very brief	Occasional
			February	---	---	---	---	None	Very brief	Occasional
			March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Occasional
			May	---	---	---	---	None	Very brief	Occasional
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Occasional
			October	---	---	---	---	None	Very brief	Occasional
			November	---	---	---	---	None	Very brief	Occasional
			December	---	---	---	---	None	Very brief	Occasional

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
71754: Waben-----	A	Very low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Cedargap-----	B	Low	January	---	---	---	---	None	Very brief	Occasional
			February	---	---	---	---	None	Very brief	Occasional
			March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Occasional
			May	---	---	---	---	None	Very brief	Occasional
			June	---	---	---	---	None	Very brief	Occasional
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Occasional
			October	---	---	---	---	None	Very brief	Occasional
			November	---	---	---	---	None	Very brief	Occasional
			December	---	---	---	---	None	Very brief	Occasional
71755: Cedargap-----	B	Low	January	---	---	---	---	None	Brief	Frequent
			February	---	---	---	---	None	Brief	Frequent
			March	---	---	---	---	None	Brief	Frequent
			April	---	---	---	---	None	Brief	Frequent
			May	---	---	---	---	None	Brief	Frequent
			June	---	---	---	---	None	Brief	Frequent
			July	---	---	---	---	None	Very brief	Occasional
			August	---	---	---	---	None	Very brief	Occasional
			September	---	---	---	---	None	Very brief	Occasional
			October	---	---	---	---	None	Brief	Frequent
			November	---	---	---	---	None	Brief	Frequent
			December	---	---	---	---	None	Brief	Frequent

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Surface water depth	Ponding		Flooding	
				Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
71755: Gladden-----	B	Low	November	---	---	---	---	None	Very brief	Occasional
			December	---	---	---	---	None	Very brief	Occasional
			January	---	---	---	---	None	Very brief	Occasional
			February	---	---	---	---	None	Very brief	Occasional
			March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Occasional
			May	---	---	---	---	None	Very brief	Occasional
			June	---	---	---	---	None	Very brief	Rare
			July	---	---	---	---	None	Very brief	Rare
			August	---	---	---	---	None	Very brief	Rare
			September	---	---	---	---	None	Very brief	Rare
October	---	---	---	---	None	Very brief	Rare			
73116: Pomme-----	B	Low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
73120: Rueter-----	B	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
73120: Gasconade-----	D	Very high	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Rock outcrop-----	D	Very high	Jan-Dec	---	---	---	---	---	---	---
73349: Boskydell-----	D	Very high	January	1.1-3.3	2.0-6.7	---	---	None	---	None
			February	1.1-3.3	2.0-6.7	---	---	None	---	None
			March	1.1-3.3	2.0-6.7	---	---	None	---	None
			April	1.1-3.3	2.0-6.7	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	1.1-3.3	2.0-6.7	---	---	None	---	None
			December	1.1-3.3	2.0-6.7	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
73350: Clinkenbeard-----	D	High	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
			Gobbler-----	B	Medium	January	---	---	---	---
February	---	---				---	---	None	---	None
March	---	---				---	---	None	---	None
April	---	---				---	---	None	---	None
May	---	---				---	---	None	---	None
June	---	---				---	---	None	---	None
July	---	---				---	---	None	---	None
August	---	---				---	---	None	---	None
September	---	---				---	---	None	---	None
October	---	---				---	---	None	---	None
November	---	---				---	---	None	---	None
December	---	---				---	---	None	---	None
73351: Sonsac-----	C	High				January	---	---	---	---
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
73351: Rueter-----	B	High	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
73352: Jollymill-----	C	Medium	January	1.5-3.3	3.3-5.0	---	---	None	---	None
			February	1.5-3.3	3.3-5.0	---	---	None	---	None
			March	1.5-3.3	3.3-5.0	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-3.3	3.3-5.0	---	---	None	---	None
Bendavis-----	C	High	January	1.5-3.0	1.7-3.3	---	---	None	---	None
			February	1.5-3.0	1.7-3.3	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	1.5-3.0	1.7-3.3	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
73353: Hailey-----	A	Low	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Sonsac-----	C	High	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
73355: Moko-----	D	Very high	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table			Ponding		Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
73355: Blueye-----	D	Very high	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Rock outcrop-----	D	Very high	Jan-Dec	---	---	---	---	---	---	---
73356: Moko-----	D	Very high	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	---	---	---

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Ponding		Flooding		
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
73357: Moko-----	D	Very high	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Boskydell-----	D	Very high	January	1.1-3.3	2.0-6.7	---	---	None	---	None
			February	1.1-3.3	2.0-6.7	---	---	None	---	None
			March	1.1-3.3	2.0-6.7	---	---	None	---	None
			April	1.1-3.3	2.0-6.7	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	1.1-3.3	2.0-6.7	---	---	None	---	None
			December	1.1-3.3	2.0-6.7	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	---	---	---
73358: Eldorado-----	B	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
73358: Moko-----	D	Very high	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
73359: Bona-----	B	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Moko-----	D	Very high	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Months	Water table		Surface water depth	Ponding		Flooding	
				Upper limit	Lower limit		Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
74640: Hootentown-----	B	Low								
			January	---	---	---	---	None	Brief	Rare
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	Brief	Rare
99000. Pits, quarries										
99001. Water										
99003. Miscellaneous water										
99007. Dam										
99016: Water.										
Riverwash-----	---	---								
			January	0.0-2.0	>6.0	---	---	None	Long	Frequent
			February	0.0-2.0	>6.0	---	---	None	Long	Frequent
			March	0.0-2.0	>6.0	---	---	None	Long	Frequent
			April	0.0-2.0	>6.0	---	---	None	Long	Frequent
			May	0.0-2.0	>6.0	---	---	None	Long	Frequent
			June	0.0-2.0	>6.0	---	---	None	Long	Frequent
			July	0.0-2.0	>6.0	---	---	None	Long	Frequent
			August	0.0-2.0	>6.0	---	---	None	Long	Frequent
			September	0.0-2.0	>6.0	---	---	None	Long	Frequent
			October	0.0-2.0	>6.0	---	---	None	Long	Frequent
			November	0.0-2.0	>6.0	---	---	None	Long	Frequent
			December	0.0-2.0	>6.0	---	---	None	Long	Frequent

Table 21.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
70067: Pembroke, karst-----	Bedrock (lithic)	60-80	0-20	Indurated	High	Low	Moderate
70068: Bendavis, karst-----	Bedrock (lithic)	20-40	40-60	Indurated	Moderate	Moderate	High
Jollymill, karst-----	Bedrock (lithic)	40-60	20-40	Indurated	Moderate	Moderate	High
Crackerneck, karst-----	Bedrock (lithic)	60-80	0-20	Indurated	Moderate	Moderate	High
70069: Jollymill, karst-----	Bedrock (lithic)	40-60	20-40	Indurated	Moderate	Moderate	High
Crackerneck, karst-----	---	---	---	---	Moderate	Moderate	High
70070: Crackerneck, karst-----	Bedrock (lithic)	60-80	0-20	Indurated	Moderate	Moderate	High
Hailey, karst-----	---	---	---	---	Moderate	Low	Moderate
70071: Sowcoon-----	Dense material	30-45	6-15	Noncemented	High	High	Moderate
Viburnum-----	---	---	---	---	Moderate	High	High
70072: Rueter-----	---	---	---	---	Moderate	Low	Moderate
Pomme-----	---	---	---	---	Moderate	Moderate	Low
70073: Beemont-----	Bedrock (lithic)	40-60	20-40	Strongly cemented	Moderate	High	Moderate
70074: Townhole-----	Bedrock (lithic)	60-80	1-20	Indurated	Moderate	Moderate	Moderate
70075: Waben-----	---	---	---	---	Moderate	Low	Moderate
70076: Clarksville-----	---	---	---	---	Moderate	Moderate	High
Noark-----	---	---	---	---	Moderate	High	High
70077: Flagspring-----	---	---	---	---	Moderate	High	High
70078: Goss-----	---	---	---	---	Moderate	High	Moderate
Rueter-----	---	---	---	---	Moderate	Moderate	Moderate
70079: Viburnum-----	---	---	---	---	Moderate	High	High
Crackerneck-----	---	---	---	---	Moderate	Moderate	High

Table 21.--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				
70080: Noark-----	---	---	---	---	Moderate	Moderate	High
Clarksville-----	---	---	---	---	Moderate	Moderate	Moderate
Crackerneck, karst-----	---	---	---	---	Moderate	Moderate	High
70081: Rueter-----	---	---	---	---	Moderate	Moderate	Moderate
Goss-----	---	---	---	---	Moderate	High	Moderate
Jollymill-----	Bedrock (lithic)	40-60	20-40	Indurated	Moderate	Moderate	High
70082: Paintbrush-----	Dense material	18-32	6-24	Noncemented	Moderate	High	Moderate
Friendly-----	Dense material	18-32	6-30	Noncemented	Moderate	High	Moderate
70083: Eldorado-----	---	---	---	---	Moderate	Moderate	Moderate
70150: Moko-----	Bedrock (lithic)	4-20	40-70	Indurated	Moderate	Low	Low
Rock outcrop.							
71253: Hartville-----	---	---	---	---	Moderate	High	Moderate
71255: Britwater-----	---	---	---	---	Moderate	Low	Moderate
71256: Townhole-----	---	---	---	---	Moderate	Moderate	High
Aslinger-----	Dense material	18-32	6-35	Noncemented	Moderate	Moderate	High
71257: Townhole, karst-----	---	---	---	---	Moderate	Moderate	High
Aslinger, karst-----	Dense material	18-32	6-35	Noncemented	Moderate	Moderate	High
71258: Maplegrove-----	---	---	---	---	Moderate	High	Low
Carl-----	---	---	---	---	Moderate	High	Low
71752: Bearthicket-----	---	---	---	---	High	Low	Moderate
71753: Cedargap-----	---	---	---	---	Moderate	High	Moderate
Pinerun-----	---	---	---	---	Moderate	Moderate	Moderate
71754: Waben-----	---	---	---	---	Moderate	Low	Moderate
Cedargap-----	---	---	---	---	Moderate	High	Moderate

Table 21.--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				
71755: Cedargap-----	---	---	---	---	Moderate	High	Moderate
Gladden-----	---	---	---	---	Moderate	High	Moderate
73116: Pomme-----	---	---	---	---	Moderate	Moderate	Moderate
73120: Rueter-----	---	---	---	---	Moderate	Low	Moderate
Gasconade----- Rock outcrop.	Bedrock (lithic)	4-20	60-76	Indurated	Moderate	High	Low
73349: Boskydell-----	Bedrock (paralithic)	24-80	0-56	Moderately cemented	Moderate	High	Low
73350: Clinkenbeard-----	Bedrock (lithic)	20-40	40-60	Indurated	Moderate	Moderate	Low
Gobbler-----	Bedrock (lithic)	40-60	20-40	Indurated	Moderate	Moderate	Low
73351: Sonsac-----	Bedrock (lithic)	20-40	40-60	Indurated	Moderate	Moderate	Low
Rueter-----	---	---	---	---	Moderate	Moderate	Moderate
73352: Jollymill-----	Bedrock (lithic)	40-60	20-40	Indurated	Moderate	Moderate	High
Bendavis-----	Bedrock (lithic)	20-40	40-60	Indurated	Moderate	Moderate	High
73353: Hailey-----	---	---	---	---	Moderate	Low	Moderate
Sonsac-----	Bedrock (lithic)	20-40	40-60	Indurated	Moderate	Moderate	Low
73355: Moko-----	Bedrock (lithic)	6-20	60-74	Indurated	Moderate	Low	Low
Blueye----- Rock outcrop.	Bedrock (lithic)	20-40	40-60	Indurated	Moderate	Moderate	Low
73356: Moko----- Rock outcrop.	Bedrock (lithic)	6-20	60-76	Indurated	Moderate	Low	Low
73357: Moko----- Boskydell----- Rock outcrop.	Bedrock (lithic)	6-20	60-74	Indurated	Moderate	Low	Low
	Bedrock (paralithic)	24-80	0-56	Moderately cemented	Moderate	High	Low
73358: Eldorado-----	---	---	---	---	Moderate	Moderate	Moderate
Moko-----	Bedrock (lithic)	4-20	40-70	Indurated	Moderate	Low	Low

Table 21.--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
73359: Bona-----	Bedrock (lithic)	60-80	0-20	Indurated	Moderate	Moderate	Moderate
Moko-----	Bedrock (lithic)	4-20	60-70	Indurated	Moderate	Low	Low
74640: Hootentown-----	---	---	---	---	High	Moderate	Moderate
99000. Pits, quarries							
99001. Water							
99003. Miscellaneous water							
99007: Dam							
99016: Water.							
Riverwash.							

Table 22.--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
Aslinger-----	Fine-loamy, mixed, active, mesic Fraguaquic Paleudults
Bearthicket-----	Fine-silty, mixed, active, mesic Ultic Hapludalfs
*Beemont-----	Very fine, smectitic, mesic Typic Hapludalfs
Bendavis-----	Loamy-skeletal, siliceous, active, mesic Typic Hapludults
Blueye-----	Fine, mixed, active, mesic Typic Argiudolls
Bona-----	Clayey-skeletal, mixed, semiactive, mesic Typic Paleudolls
Boskydell-----	Clayey-skeletal, mixed, active, mesic Oxyaquic Hapludalfs
Britwater-----	Fine-loamy, mixed, active, mesic Typic Paleudalfs
Carl-----	Fine, smectitic, thermic Typic Epiaquerts
Cedargap-----	Loamy-skeletal, mixed, superactive, mesic Cumulic Hapludolls
Clarksville-----	Loamy-skeletal, siliceous, semiactive, mesic Typic Paleudults
Clinkenbeard-----	Clayey-skeletal, mixed, superactive, mesic Typic Argiudolls
Crackerneck-----	Loamy-skeletal, siliceous, semiactive, mesic Oxyaquic Paleudults
Eldorado-----	Loamy-skeletal, mixed, active, thermic Typic Paleudolls
Flagspring-----	Fine, mixed, semiactive, mesic Typic Hapludults
Friendly-----	Fine, mixed, active, mesic Fraguaquic Hapludalfs
Gasconade-----	Clayey-skeletal, mixed, superactive, mesic Lithic Hapludolls
Gladden-----	Coarse-loamy, siliceous, superactive, mesic Dystric Fluventic Eutrudepts
Gobbler-----	Clayey-skeletal, mixed, active, mesic Typic Hapludalfs
Goss-----	Clayey-skeletal, mixed, active, mesic Typic Paleudalfs
Hailey-----	Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs
Hartville-----	Fine, mixed, active, mesic Aquic Hapludalfs
Hootentown-----	Fine-silty, mixed, active, mesic Typic Paleudalfs
Jollymill-----	Loamy-skeletal, siliceous, semiactive, mesic Oxyaquic Hapludults
Maplegrove-----	Fine, mixed, active, thermic Oxyaquic Argiudolls
Moko-----	Loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls
Noark-----	Clayey-skeletal, mixed, semiactive, mesic Typic Paleudults
Paintbrush-----	Fine-loamy, mixed, active, mesic Fraguaquic Paleudalfs
Pembroke-----	Fine-silty, mixed, active, mesic Mollic Paleudalfs
Pinerun-----	Loamy-skeletal, siliceous, active, mesic Typic Hapludalfs
Pomme-----	Fine-loamy, mixed, semiactive, mesic Typic Paleudalfs
Rueter-----	Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs
Sonsac-----	Clayey-skeletal, mixed, active, mesic Typic Hapludalfs
Sowcoon-----	Fine-silty, mixed, active, mesic Fraguaquic Paleudults
Townhole-----	Loamy-skeletal, mixed, semiactive, mesic Oxyaquic Paleudalfs
Viburnum-----	Fine, mixed, active, mesic Aquic Paleudults
Waben-----	Loamy-skeletal, siliceous, active, mesic Ultic Hapludalfs

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