United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Kentucky Natural Resources and Environmental Protection Cabinet, Kentucky Agricultural Experiment Station, and Adair County Conservation District

Soil Survey of Adair County, Kentucky

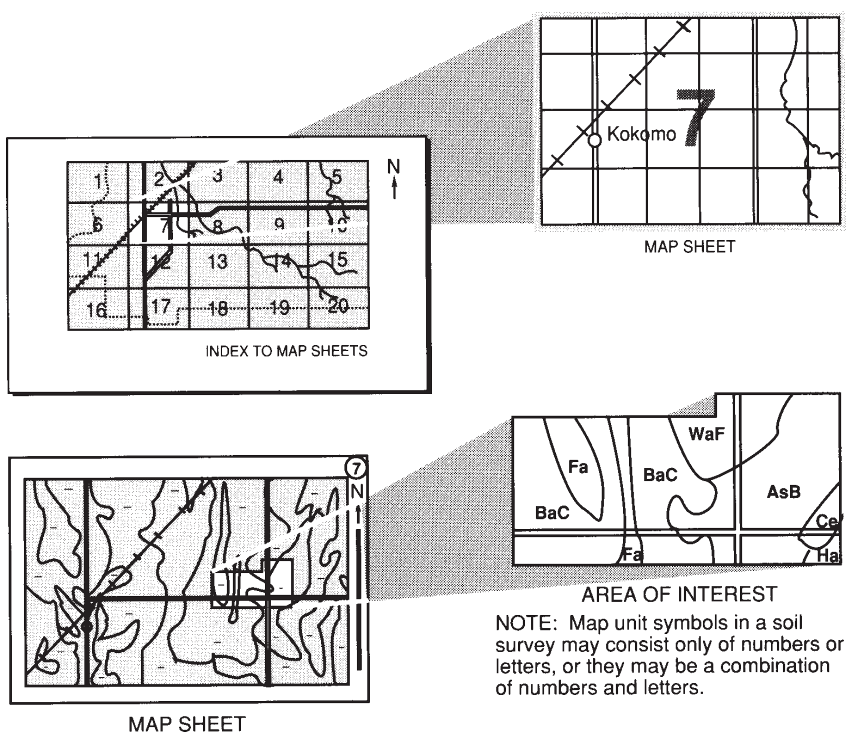
How To Use This Soil Survey

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 go to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Go 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.



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 2005. Soil names and descriptions were approved in 2006. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2006. This survey was made cooperatively by the Natural Resources Conservation Service, the Kentucky Agricultural Experiment Station, the Kentucky Natural Resources and Environmental Protection Cabinet, and the Adair County Board of Commissioners. The survey is part of the technical assistance furnished to the Adair County Conservation District.

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

Cover: Pasture in an area of Frederick silt loam, 6 to 12 percent slopes, eroded, is in the foreground. An area of Pricetown silt loam, 2 to 6 percent slopes, that is in cultivated fields and a farmstead is in background.

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

Contents

Issued 2008

Foreword

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

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

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

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

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

Michael D. Hubbs
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Adair County, Kentucky

By Harry S. Evans, Natural Resources Conservation Service

Fieldwork by Harry S. Evans and Edward C. Tudor, Natural Resources Conservation Service, and Gerald A. Richardson, Kentucky Natural Resources and Environmental Protection Cabinet

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
Kentucky Natural Resources and Environmental Protection Cabinet, Kentucky Agricultural Experiment Station, and Adair County Conservation District

Adair County is in the south-central part of Kentucky (fig. 1). It has a total area of about 412 square miles, or 263,974 acres. In 2006, according to the U.S. Census the estimated population of Adair County was 17,650. Columbia, the county seat, which is near the center of the county, had an estimated population of 4,174 *(5)*.

This soil survey updates the soil survey of Adair County, Kentucky, published in 1961 *(12)*.

General Nature of the Survey Area

This section contains information on the climate of Adair County. Information about the history, geography, and demographics of the survey area can be accessed at the following websites *(3, 4, 13, 14)*:

http://www.adaircounty.ky.gov/;
http://freepages.genealogy.rootsweb.com/~mysurnames/adairkehp1.htm;
http://www.uky.edu/KentuckyAtlas/21001.html; and
http://en.wikipedia.org/wiki/Adair_County,_Kentucky.

Climate

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

In winter, the average temperature is 37.5 degrees F and the average daily minimum temperature is 27.5 degrees. The lowest temperature on record, which occurred at Summer Shade on January 23, 1963, was -28 degrees. In summer, the average temperature is 74.7 degrees and the average daily maximum temperature is 85.7 degrees. The highest recorded temperature, which occurred at Summer Shade on July 28, 1952, was 106 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

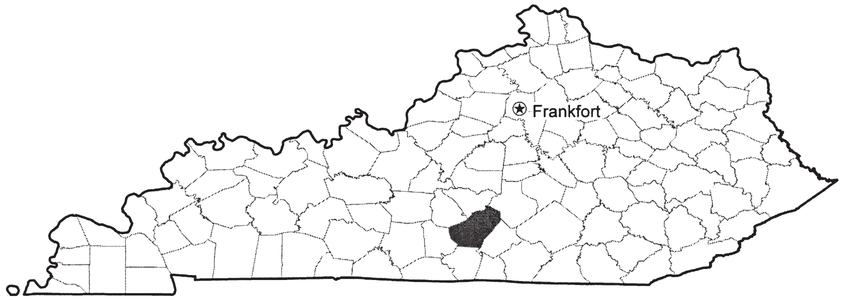


Figure 1.—Location of Adair County in Kentucky.

temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual precipitation is 50.39 inches. Of this, 28 inches, or about 56 percent, usually falls in April through October. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 13 inches. The heaviest 1-day rainfall during the period of record was 6.45 inches, recorded at Summer Shade on September 9, 1970. Thunderstorms occur on about 45 days each year, and most occur between May and August.

The average seasonal snowfall is 10.8 inches. The greatest snow depth at any one time during the period of record was 13 inches. On the average, 11 days of the year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 15 inches, recorded on March 9, 1960.

The average relative humidity in mid-afternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 66 percent of the time possible in summer and 43 percent in winter. The prevailing wind is dominantly from the south; it is from the northwest in late winter/spring (February through March). Average windspeed is highest, around 10 miles per hour in January through April.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their 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.

Detailed Soil Map Units

The map units delineated on the detailed soil maps 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 non-contrasting, or similar, components. They 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 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 and agronomic interpretations. If intensive use of a small area is planned, an 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, 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, Frederick silt loam, 12 to 20 percent slopes, eroded, is a phase of the Frederick series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Carpenter-Lenberg complex, 12 to 40 percent slopes, is an example.

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

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

CaC—Carpenter gravelly silt loam, 6 to 12 percent slopes

Map Unit Composition

Major components:
Carpenter and similar soils: 85 percent

Contrasting inclusions:
- Lenberg soils—8 percent
- Rohan soils—4 percent
- Garmon soils—3 percent

Major Component Description

Landform: Hillsides on uplands
Position on landform: Footslopes
Parent material: Gravelly colluvium over clayey residuum weathered from shale and siltstone
Slope: 6 to 12 percent
Depth to restrictive feature: 40 to 65 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow to impermeable (about 0.00 in/hr)
Available water capacity: High (about 6.0 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
6 to 14 inches—light yellowish brown gravelly silt loam

Subsoil:
14 to 36 inches—yellowish brown and light brown gravelly silt loam and silty clay loam
36 to 56 inches—light yellowish brown silty clay

Bedrock:
56 to 65 inches—light yellowish brown weathered shale bedrock

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The rooting depth of crops may be restricted by the high clay content.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- Stones restrict the use of equipment in preparing sites for planting or seeding.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of properly installing the effluent distribution lines.
- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

CbE—Carpenter-Lenberg complex, 12 to 40 percent slopes

Map Unit Composition

Major components:
Carpenter and similar soils: 45 percent
Lenberg and similar soils: 35 percent

Contrasting inclusions:
Gilpin soils—10 percent
Frankstown soils—10 percent

Major Component Descriptions

Carpenter

Landform: Hillsides on uplands
Position on landform: Footslopes
Parent material: Gravelly colluvium derived from sedimentary rock over residuum weathered from shale and siltstone
Slope: 12 to 40 percent
Depth to restrictive feature: 40 to 65 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow to impermeable (about 0.00 in/hr)
Available water capacity: High (about 6.0 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: High

Lenberg

Landform: Hillsides on uplands
Position on landform: Footslopes
Parent material: Clayey residuum weathered from shale and siltstone
Slope: 12 to 40 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow to impermeable (about 0.00 in/hr)
Available water capacity: Moderate (about 4.1 inches)
Shrink-swell potential: Moderate (about 5.9 LEP)
Seasonal water table: None
Runoff class: High

Typical Profiles

Carpenter

Surface layer:
0 to 6 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
6 to 14 inches—light yellowish brown gravelly silt loam

Subsoil:
14 to 36 inches—yellowish brown and light brown gravelly silt loam and silty clay loam
36 to 56 inches—light yellowish brown silty clay

Bedrock:
56 to 65 inches—light yellowish brown soft weathered shale bedrock

Lenberg

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 22 inches—yellowish brown silty clay loam and silty clay
22 to 30 inches—light yellowish brown channery silty clay

Bedrock:
30 to 41 inches—gray and brown weathered shale bedrock

Use and Management Considerations

Cropland

- These soils are generally not suited to cropland.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during the construction of haul roads and log landings.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of harvesting and mechanical planting equipment.
- Because of the slope, the use of mechanical planting equipment is not practical.
- Because of the content of rock fragments, the use of mechanical planting equipment is not practical.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The slope restricts the use of equipment in preparing sites for planting and seeding.
- Stones restrict the use of equipment in preparing sites for planting or seeding.
- Because of the stickiness of the soil, the use of equipment for site preparation is restricted to the drier periods.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of properly installing the effluent distribution lines.
- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

Interpretive Group

Land capability classification (non-irrigated areas): 6e

Cg—Chagrin fine sandy loam, occasionally flooded

Map Unit Composition

Major components:
Chagrin and similar soils: 85 percent

Contrasting inclusions:
Nolin soils—5 percent
Yosemite soils—5 percent
Skidmore soils—5 percent

Major Component Description

Landform: Flood plains on valleys
Parent material: Fine-loamy alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Moderate (about 0.60 in/hr)
Available water capacity: High (about 7.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: Occasional
Seasonal water table (depth, type): About 48 to 72 inches; apparent
Runoff class: Negligible

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown fine sandy loam

Subsoil:
8 to 41 inches—brown and yellowish brown loam

Substratum:
41 to 80 inches—yellowish brown stratified gravelly sandy loam and loam

Cropland

- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Small grain crops may be damaged by flooding in winter and spring.

Pasture and hay

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.

- Flooding may result in damage to haul roads and increased maintenance costs.
- Flooding restricts the safe use of roads by log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesites. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2w

CwB—Culleoka-Weikert complex, 2 to 6 percent slopes

Map Unit Composition

Major components:
Culleoka and similar soils: 55 percent
Weikert and similar soils: 35 percent

Contrasting inclusions:
Frederick soils—5 percent
Frankstown soils—3 percent
Gilpin soils—2 percent

Major Component Descriptions

Culleoka

Landform: Ridges on uplands
Position on landform: Summits
Parent material: Fine-loamy residuum weathered from limestone and siltstone
Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow to impermeable (about 0.00 in/hr)
Available water capacity: Moderate (about 5.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Low

Weikert

Landform: Ridges on uplands
Position on landform: Summits
Parent material: Fine-loamy residuum weathered from shale and siltstone
Slope: 2 to 6 percent

Depth to restrictive feature: 12 to 18 inches to paralithic bedrock; 15 to 35 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Moderately rapid (about 1.98 in/hr)
Available water capacity: Very low (about 1.0 inch)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Low

Typical Profiles

Culleoka

Surface layer:
0 to 13 inches—brown channery silt loam

Subsoil:
13 to 36 inches—yellowish brown channery silt loam

Bedrock:
36 to 46 inches—siltstone bedrock

Weikert

Surface layer:
0 to 7 inches—brown channery silt loam

Subsoil:
7 to 15 inches—yellowish brown very channery silt loam

Bedrock:
15 to 25 inches—weathered siltstone
25 inches—siltstone bedrock

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion (fig. 2).
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Rock fragments may obstruct the use of mechanical planting equipment.

Pasture and hay

- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- These soils provide poor summer pasture.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate

Figure 2.—Cabbage in an area of Culleoka-Weikert complex, 2 to 6 percent slopes.

and damage may result. The low soil strength may create unsafe conditions for log trucks.
- Rock fragments obstruct the use of mechanical planting equipment.
- Because of the content of rock fragments, the use of mechanical planting equipment is not practical.
- Stones restrict the use of equipment in preparing sites for planting or seeding.

Dwellings and small commercial buildings

- These soils are well suited to use as building sites.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 4s

Du—Dunning silty clay loam, rarely flooded

Map Unit Composition

Major components:
Dunning and similar soils: 90 percent

Contrasting inclusions:
Newark soils—6 percent

Melvin soils—3 percent
Lawrence soils—1 percent

Major Component Description

Landform: Flood plains on valley
Parent material: Clayey alluvium derived from limestone
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: High (about 6.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: Rare
Seasonal water table (depth, type): About 0 to 8 inches; apparent
Runoff class: Low

Typical Profile

Surface layer:
0 to 8 inches—very dark brown silty clay loam that has redoximorphic features

Subsoil:
8 to 36 inches—very dark brown and dark grayish brown silty clay that has redoximorphic features

Substratum:
36 to 72 inches—greenish gray and dark olive gray silty clay that has redoximorphic features

Use and Management Considerations

Cropland

- The careful selection and application of chemicals and fertilizers helps to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The movement of water into subsurface drains is restricted.
- Subsurface drainage helps to lower the seasonal high water table.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

Pasture and hay

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate

and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Dwellings and small commercial buildings

- Under unusual weather conditions, this soil is subject to rare flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesites. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- This soil is generally poorly suited to septic tank absorption fields. The flooding on rare occasions limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.
- Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Interpretive Group

Land capability classification (non-irrigated areas): 3w

EwB—Etowah silt loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Etowah and similar soils: 90 percent

Contrasting inclusions:
Nolin soils—5 percent
Lindside soils—3 percent
Otwood soils—2 percent

Major Component Description

Landform: Stream terraces on river valleys
Position on landform: Gently sloping terrace benches
Parent material: Fine-loamy alluvium
Slope: 2 to 6 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Moderate (about 0.60 in/hr)
Available water capacity: High (about 7.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Low

Typical Profile

Surface layer:
0 to 12 inches—dark brown silt loam

Subsoil:
12 to 26 inches—strong brown clay loam
26 to 80 inches—strong brown silty clay loam

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- This soil is well suited to use as building sites.

Septic tank absorption fields

- The moderate permeability within the depth of the filter field somewhat limits the absorption of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

EwC—Etowah silt loam, 6 to 12 percent slopes

Map Unit Composition

Major components:
Etowah and similar soils: 90 percent

Contrasting inclusions:
Otwood soils—5 percent
Tarklin soils—3 percent
Frederick soils—2 percent

Major Component Description

Landform: Stream terraces on river valleys
Position on landform: Sloping terrace side slopes
Parent material: Fine-loamy alluvium
Slope: 6 to 12 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Moderate (about 0.60 in/hr)

Available water capacity: High (about 7.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 12 inches—dark brown silt loam

Subsoil:
12 to 26 inches—strong brown clay loam
26 to 80 inches—strong brown silty clay loam

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The moderate permeability within the depth of the filter field somewhat limits the absorption of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

FkB—Frankstown gravelly silt loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Frankstown and similar soils: 90 percent

Contrasting inclusions:
  Pricetown soils—4 percent
  Frederick soils—4 percent
  Sano soils—2 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits
Parent material: Fine-loamy residuum weathered from sedimentary rock
Slope: 2 to 6 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: High (about 6.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: Low

Typical Profile

Surface layer:
0 to 7 inches—brown gravelly silt loam

Subsurface layer:
7 to 13 inches—yellowish brown gravelly silt loam

Subsoil:
13 to 42 inches—yellowish brown and strong brown gravelly silty clay loam

Bedrock:
42 to 51 inches—weathered limestone and siltstone

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The rooting depth of crops may be restricted by the depth to bedrock.

Pasture and hay

- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate

and damage may result. The low soil strength may create unsafe conditions for log trucks.
- Rock fragments obstruct the use of mechanical planting equipment.

Dwellings and small commercial buildings

- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of properly installing the effluent distribution lines.
- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

FkC2—Frankstown gravelly silt loam, 6 to 12 percent slopes, eroded

Map Unit Composition

Major components:
Frankstown and similar soils: 90 percent

Contrasting inclusions:
Frederick soils—5 percent
Pricetown soils—3 percent
Sano soils—2 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits and shoulder slopes
Parent material: Fine-loamy residuum weathered from sedimentary rock
Slope: 6 to 12 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: High (about 6.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 4 inches—brown gravelly silt loam

Subsurface layer:
4 to 9 inches—yellowish brown gravelly silt loam

Subsoil:
9 to 42 inches—yellowish brown and strong brown gravelly silty clay loam

Bedrock:
42 to 51 inches—weathered limestone and siltstone

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- The rooting depth of crops may be restricted by the depth to bedrock.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.

Dwellings and small commercial buildings

- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of properly installing the effluent distribution lines.
- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

FkD2—Frankstown gravelly silt loam, 12 to 20 percent slopes, eroded

Map Unit Composition

Major components:
Frankstown and similar soils: 90 percent

Contrasting inclusions:
Frederick soils—5 percent
Garmon soils—5 percent

Major Component Description

Landform: Hillsides on uplands
Position on landform: Shoulder slopes
Parent material: Fine-loamy residuum weathered from sedimentary rock
Slope: 12 to 20 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: High (about 6.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 7 inches—brown gravelly silt loam

Subsurface layer:
7 to 13 inches—yellowish brown gravelly silt loam

Subsoil:
13 to 42 inches—yellowish brown and strong brown gravelly silty clay loam

Bedrock:
42 to 51 inches—weathered limestone and siltstone

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- The rooting depth of crops may be restricted by the depth to bedrock.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.

- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during the construction of haul roads and log landings.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- The slope restricts the use of equipment in preparing sites for planting and seeding.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of properly installing the effluent distribution lines.
- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines to prevent downslope seepage to adjacent areas.

Interpretive Group

Land capability classification (non-irrigated areas): 4e

FrB2—Frederick silt loam, 2 to 6 percent slopes, eroded

Map Unit Composition

Major components:
Frederick and similar soils: 90 percent

Contrasting inclusions:
Frankstown soils—5 percent
Pricetown soils—5 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits
Parent material: Clayey residuum weathered from limestone
Slope: 2 to 6 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.05 in/hr)
Available water capacity: High (about 6.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)

Seasonal water table: None
Runoff class: Low

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown silt loam

Subsoil:
9 to 18 inches—strong brown silty clay loam
18 to 36 inches—yellowish red silty clay
36 to 80 inches—yellowish red and reddish yellow clay

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Dwellings and small commercial buildings

- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

FrC2—Frederick silt loam, 6 to 12 percent slopes, eroded

Map Unit Composition

Major components:
Frederick and similar soils: 85 percent

Contrasting inclusions:
- Frankstown soils—5 percent
- Needmore soils—5 percent
- Caneyville soils—3 percent
- Pricetown soils—2 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits and shoulder slopes
Parent material: Clayey residuum weathered from limestone
Slope: 6 to 12 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.05 in/hr)
Available water capacity: High (about 6.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown silt loam

Subsoil:
9 to 18 inches—strong brown silty clay loam
18 to 36 inches—yellowish red silty clay
36 to 80 inches—yellowish red and reddish yellow clay

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.

- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Dwellings and small commercial buildings

- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

FrD2—Frederick silt loam, 12 to 20 percent slopes, eroded

Map Unit Composition

Major components:
Frederick and similar soils: 85 percent

Contrasting inclusions:
Caneyville soils—5 percent
Frankstown soils—5 percent
Needmore soils—5 percent

Major Component Description

Landform: Hillsides on uplands
Position on landform: Backslopes
Parent material: Clayey residuum weathered from limestone
Slope: 12 to 20 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.05 in/hr)
Available water capacity: High (about 6.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: High

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown silt loam

Subsoil:
9 to 18 inches—strong brown silty clay loam
18 to 36 inches—yellowish red silty clay
36 to 80 inches—yellowish red and reddish yellow clay

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during the construction of haul roads and log landings.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The slope restricts the use of equipment in preparing sites for planting and seeding.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

Interpretive Group

Land capability classification (non-irrigated areas): 4e

FvE—Frederick-Caneyville complex, 20 to 40 percent slopes, rocky

Map Unit Composition

Major components:
Frederick and similar soils: 70 percent
Caneyville and similar soils: 20 percent

Contrasting inclusions:
- Frankstown soils—5 percent
- Needmore soils—4 percent
- Rock outcrop—1 percent

Major Component Descriptions

Frederick

Landform: Hillsides on uplands
Positions on landform: Shoulder slopes and backslopes
Parent material: Clayey residuum weathered from limestone
Slope: 20 to 40 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.05 in/hr)
Available water capacity: High (about 6.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: High

Caneyville

Landform: Hillsides on uplands
Positions on landform: Shoulder slopes and backslopes
Parent material: Clayey residuum weathered from limestone
Slope: 20 to 40 percent
Depth to restrictive feature: 20 to 40 inches to limestone bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Moderate (about 4.6 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: Very high

Typical Profiles

Frederick

Surface layer:
0 to 9 inches—dark yellowish brown silt loam

Subsoil:
9 to 18 inches—strong brown silty clay loam
18 to 36 inches—yellowish red silty clay
36 to 80 inches—yellowish red and reddish yellow clay

Caneyville

Surface layer:
0 to 5 inches—brown silt loam

Subsurface layer:
5 to 12 inches—strong brown silty clay loam

Subsoil:
12 to 30 inches—yellowish red silty clay

Bedrock:
30 inches—limestone

Use and Management Considerations

Cropland

- These soils are generally not suited to cropland.
- Because of the slope, erosion hazard, and rocks on the surface, cultivation is generally impractical.

Pasture and hay

- These soils are generally not recommended for pasture.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during the construction of haul roads and log landings.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The high content of stones or boulders on the surface may obstruct the construction of haul roads and log landings.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The volume of rock fragments on the surface may reduce the traction of wheeled harvest equipment.
- The slope creates unsafe operating conditions and reduces the operating efficiency of harvesting and mechanical planting equipment.
- Stones or boulders on the surface obstruct the use of mechanical planting equipment.
- Because of the slope, the use of mechanical planting equipment is not practical.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- Rock fragments on the surface interfere with the use of site preparation equipment.
- The slope restricts the use of equipment in preparing sites for planting and seeding.
- Because of the stickiness of the soil, the use of equipment for site preparation is restricted to the drier periods.

Dwellings and small commercial buildings

- The slope and rock outcrops influence the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- The moderate shrinking and swelling of the soil may crack foundations and

basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability and rock outcrops limit the absorption and proper treatment of the effluent from septic systems.
- Because of the slope and rock outcrops, special design and installation techniques are needed for the effluent distribution lines.

Interpretive Group

Land capability classification (non-irrigated areas): 7e

GaF—Garmon channery silt loam, 20 to 70 percent slopes

Map Unit Composition

Major components:
Garmon and similar soils: 85 percent

Contrasting inclusions:
Culleoka soils—5 percent
Weikert soils—5 percent
Carpenter soils—5 percent

Major Component Description

Landform: Hillsides on uplands
Position on landform: Steep hillsides
Parent material: Fine-loamy residuum from siltstone
Slope: 20 to 70 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 2.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: High

Typical Profile

Surface layer:
0 to 4 inches—brown channery silt loam

Subsoil:
4 to 25 inches—yellowish brown channery silt loam

Bedrock:
25 inches—siltstone bedrock

Use and Management Considerations

Cropland

- This soil is generally not suited to cropland.
- Because of the slope and erosion hazard, cultivation is generally impractical.

Pasture and hay

- This soil is generally not recommended for pasture.
- Because of the slope, establishing pastures is generally impractical.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during the construction of haul roads and log landings.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of harvesting and mechanical planting equipment.
- Because of the slope, the use of equipment in preparing sites for planting and seeding is not practical.
- Because of the slope, the use of mechanical planting equipment is not practical.
- Rock fragments obstruct the use of mechanical planting equipment.
- Stones restrict the use of equipment in preparing sites for planting or seeding.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope and depth to bedrock, special design and installation techniques are needed for the effluent distribution lines.

Interpretive Group

Land capability classification (non-irrigated areas): 7e

GpB—Gilpin channery silt loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Gilpin and similar soils: 85 percent

Contrasting inclusions:
Garmon soils—5 percent
Frankstown soils—5 percent
Riney soils—5 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits
Parent material: Fine-loamy residuum weathered from sandstone and siltstone
Slope: 2 to 6 percent

Depth to restrictive feature: 20 to 36 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 3.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Low

Typical Profile

Surface layer:
0 to 8 inches—brown channery silt loam

Subsoil:
8 to 15 inches—yellowish brown channery silt loam
15 to 24 inches—yellowish brown channery silty clay loam

Bedrock:
24 to 28 inches—highly fractured weathered siltstone
28 inches—siltstone bedrock

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.

Pasture and hay

- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- Rock fragments obstruct the use of mechanical planting equipment.

Dwellings and small commercial buildings

- This soil is well suited to use as building sites.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

GpC—Gilpin channery silt loam, 6 to 12 percent slopes

Map Unit Composition

Major components:
Gilpin and similar soils: 85 percent

Contrasting inclusions:
Frankstown soils—8 percent
Garmon soils—5 percent
Riney soils—2 percent

Major Component Description

Landform: Ridges on uplands
Positions on landform: Summits and shoulder slopes
Parent material: Fine-loamy residuum weathered from sandstone and siltstone
Slope: 6 to 12 percent
Depth to restrictive features: 20 to 36 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 3.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 8 inches—brown channery silt loam

Subsoil:
8 to 15 inches—yellowish brown channery silt loam
15 to 24 inches—yellowish brown channery silty clay loam

Bedrock:
24 to 28 inches—highly fractured weathered siltstone
28 inches—hard siltstone

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

GpD—Gilpin channery silt loam, 12 to 20 percent slopes

Map Unit Composition

Major components:
Gilpin and similar soils: 80 percent

Contrasting inclusions:
Frankstown soils—10 percent
Garmon soils—10 percent

Major Component Description

Landform: Hillsides on uplands
Positions on landform: Shoulder slopes and backslopes
Parent material: Fine-loamy residuum weathered from sandstone and siltstone
Slope: 12 to 20 percent
Depth to restrictive features: 20 to 36 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 3.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)

Depth to seasonal water table: More than 6 feet
Runoff class: Medium

Typical Profile

Surface layer:
0 to 8 inches—brown channery silt loam

Subsoil:
8 to 15 inches—yellowish brown channery silt loam
15 to 24 inches—yellowish brown channery silty clay loam

Bedrock:
24 to 28 inches—weathered highly fractured siltstone
28 inches—hard siltstone

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during the construction of haul roads and log landings.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- The slope restricts the use of equipment in preparing sites for planting and seeding.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

Interpretive Group

Land capability classification (non-irrigated areas): 4e

Jo—Johnsburg silt loam

Map Unit Composition

Major components:
Johnsburg and similar soils: 85 percent

Contrasting inclusions:
Sano soils—5 percent
Teddy soils—5 percent
Pricetown soils—5 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Nearly level, broad summits
Parent material: Fine-silty deposits over residuum weathered from siltstone, sandstone, or shale
Slope: 0 to 2 percent
Depth to restrictive feature: 22 to 36 inches to a fragipan
Drainage class: Somewhat poorly drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: High (about 7.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table (depth, type): 12 to 18 inches; perched
Runoff class: Low

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsurface layer:
8 to 13 inches—light yellowish brown silt loam that has gray redoximorphic features

Subsoil:
13 to 34 inches—pale brown and light brownish gray silt loam
34 to 55 inches—yellowish brown silt loam fragipan that has gray redoximorphic features
55 to 72 inches—yellowish brown and strong brown silty clay loam that has gray redoximorphic features

Bedrock:
72 to 78 inches—weathered siltstone

Use and Management Considerations

Cropland

- Controlling traffic can minimize soil compaction.

- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The movement of water into subsurface drains is restricted.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pasture and hay

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The rooting depth of plants may be restricted by a dense soil layer.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be required. This soil is poorly suited to building site development, and structures may need special design for the prevention of damage from wetness.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Interpretive Group

Land capability classification (non-irrigated areas): 3w

La—Lawrence silt loam

Map Unit Composition

Major components:
Lawrence and similar soils: 85 percent

Contrasting inclusions:
- Newark soils—5 percent
- Otwood soils—5 percent
- Robertsville soils—5 percent

Major Component Description

Landform: Stream terraces on river valleys
Position on landform: Nearly level terrace benches
Parent material: Fine-silty alluvium derived from sedimentary rock
Slope: 0 to 2 percent
Depth to restrictive feature: 18 to 30 inches to a fragipan
Drainage class: Somewhat poorly drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Moderate (about 4.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table (depth, type): 12 to 18 inches; perched
Runoff class: Low

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown silt loam

Subsurface layer:
9 to 15 inches—yellowish brown silt loam

Subsoil:
15 to 24 inches—light yellowish brown silt loam that has gray redoximorphic features
24 to 47 inches—light yellowish brown silt loam fragipan that has brownish yellow and light brownish gray redoximorphic features
47 to 72 inches—yellowish brown silty clay loam that has light brownish gray redoximorphic features

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The movement of water into subsurface drains is restricted.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pasture and hay

- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The rooting depth of plants may be restricted by a dense soil layer.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be required. This soil is poorly suited to building site development, and structures may need special design for the prevention of damage from wetness.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Interpretive Group

Land capability classification (non-irrigated areas): 3w

Ld—Lindside silt loam, occasionally flooded

Map Unit Composition

Major components:
Lindside and similar soils: 85 percent

Contrasting inclusions:
Newark soils—10 percent
Nolin soils—5 percent

Major Component Description

Landform: Flood plains on river valleys
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Slowest permeability to a depth of 60 inches: Moderately slow (about 0.20 in/hr)
Available water capacity: Very high (about 8.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: Occasional
Seasonal water table (depth, type): 18 to 24 inches; apparent
Runoff class: Negligible

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 21 inches—brown silt loam

21 to 36 inches—yellowish brown silt loam that has strong brown and gray redoximorphic features

Substratum:
36 to 80 inches—light yellowish brown silt loam that has gray redoximorphic features

Use and Management Considerations

Cropland

- Small grain crops may be damaged by flooding in winter and spring.
- The careful selection and application of chemicals and fertilizers helps to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.

Pasture and hay

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness may limit the use of log trucks.
- Flooding restricts the safe use of roads by log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesites. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2w

LoB—Lonewood loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Lonewood and similar soils: 85 percent

Contrasting inclusions:
  Sano soils—5 percent
  Gilpin soils—5 percent
  Pricetown soils—5 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits
Parent material: Loess over loamy residuum weathered from sandstone
Slope: 2 to 6 percent
Depth to restrictive feature: 48 to 60 inches to paralithic bedrock; 60 to 72 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Moderate (about 0.60 in/hr)
Available water capacity: Moderate (about 5.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Low

Typical Profile

Surface layer:
0 to 7 inches—dark brown loam

Subsurface layer:
7 to 15 inches—yellowish brown loam

Subsoil:
15 to 28 inches—yellowish brown clay loam
28 to 59 inches—yellowish brown and strong brown clay loam

Bedrock:
59 to 66 inches—weathered sandstone
66 inches—hard sandstone

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.

Pasture and hay

- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- This soil is well suited to use as building sites.

Septic tank absorption fields

- The limited depth to bedrock in some areas reduces the filtering capacity of the soil and greatly increases the difficulty of properly installing the effluent distribution lines.
- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

LoC—Lonewood loam, 6 to 12 percent slopes

Map Unit Composition

Major components:
Lonewood and similar soils: 85 percent

Contrasting inclusions:
  Pricetown soils—5 percent
  Gilpin soils—5 percent
  Frankstown soils—5 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits and shoulder slopes
Parent material: Loess over loamy residuum weathered from sandstone
Slope: 6 to 12 percent
Depth to restrictive feature: 48 to 60 inches to paralithic bedrock; 60 to 72 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Moderate (about 0.60 in/hr)
Available water capacity: Moderate (about 5.8 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 7 inches—dark brown loam

Subsurface layer:
7 to 15 inches—yellowish brown loam

Subsoil:
15 to 28 inches—yellowish brown clay loam
28 to 59 inches—yellowish brown and strong brown clay loam

Bedrock:
59 to 66 inches—weathered sandstone
66 inches—hard sandstone

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- The limited depth to bedrock in some areas reduces the filtering capacity of the soil and greatly increases the difficulty of properly installing the effluent distribution lines.
- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

Me—Melvin silt loam, occasionally flooded

Map Unit Composition

Major components:
Melvin and similar soils: 85 percent

Contrasting inclusions:
Newark soils—10 percent
Lindside soils—5 percent

Major Component Description

Landform: Flood plains on valleys
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest permeability to a depth of 60 inches: Moderate (about 0.60 in/hr)
Available water capacity: Very high (about 8.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Flooding hazard: Occasional
Seasonal water table (depth, type): 0 to 8 inches; apparent
Runoff class: Low

Typical Profile

Surface layer:
0 to 8 inches—grayish brown silt loam that has strong brown and gray redoximorphic features

Subsoil:
8 to 22 inches—light brownish gray silt loam that has black and yellowish brown redoximorphic features

Substratum:
22 to 80 inches—light gray and gray silt loam that has light olive brown and yellowish brown redoximorphic features

Use and Management Considerations

Cropland

- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Small grain crops may be damaged by flooding in winter and spring.
- The careful selection and application of chemicals and fertilizers helps to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness may limit the use of log trucks.
- Flooding restricts the safe use of roads by log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesites. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to septic tank absorption fields. The flooding greatly

limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.
- Because of the seasonal high water table, this soil is generally unsuited to septic tank absorption fields.

Interpretive Groups

Land capability classification (non-irrigated areas): 4w

Mp—Melvin silt loam, ponded

Map Unit Composition

Major components:
Melvin and similar soils: 90 percent

Contrasting inclusions:
Robertsville soils—5 percent
Dunning soils—5 percent

Major Component Description

Landform: Depression on valley
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest permeability to a depth of 60 inches: Moderate (about 0.60 in/hr)
Available water capacity: Very high (about 8.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Ponding hazard: Frequent
Seasonal water table (depth, type): At the surface; apparent
Runoff class: Negligible

Typical Profile

Surface layer:
0 to 8 inches—grayish brown silt loam that has strong brown and gray redoximorphic features

Subsoil:
8 to 22 inches—light brownish gray silt loam that has black and yellowish brown redoximorphic features

Substratum:
22 to 80 inches—light gray and gray silt loam that has light olive brown and yellowish brown redoximorphic features

Use and Management Considerations

Cropland

- This soil is not suited to cropland because of the ponding and seasonal wetness.

Pasture and hay

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Ponding and soil wetness limits the use of this soil by log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Because water ponds on this soil for long periods, it is unsuited to building site development.

Septic tank absorption fields

- Because of the ponding, this soil is unsuited to use as a site for septic tank absorption fields.

Interpretive Group

Land capability classification (non-irrigated areas): 5w

NeB—Needmore silt loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Needmore and similar soils: 85 percent

Contrasting inclusions:
Frederick soils—10 percent
Culleoka soils—3 percent
Weikert soils—2 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits
Parent material: Clayey residuum weathered from calcareous shale
Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 2.5 inches)
Shrink-swell potential: High (about 7.5 LEP)
Seasonal water table: None
Runoff class: Low

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown silt loam

Subsoil:
6 to 24 inches—strong brown and yellowish red silty clay

Bedrock:
24 inches—weathered calcareous shale

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- Because of the stickiness of the soil, the use of equipment for site preparation is restricted to the drier periods.

Dwellings and small commercial buildings

- The severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

NeC2—Needmore silt loam, 6 to 12 percent slopes, eroded

Map Unit Composition

Major components:
Needmore and similar soils: 85 percent

Contrasting inclusions:
Frederick soils—5 percent
Caneyville soils—5 percent
Weikert soils—3 percent
Culleoka soils—2 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits and shoulder slopes
Parent material: Clayey residuum weathered from calcareous shale
Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Moderate (about 4.0 inches)
Shrink-swell potential: High (about 7.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 5 inches—yellowish brown silt loam

Subsoil:
5 to 24 inches—reddish yellow silty clay

Bedrock:
24 inches—weathered calcareous shale

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.

Figure 3.—Pasture in an area of Needmore silt loam, 6 to 12 percent slopes, eroded.

- Erosion control is needed when pastures are renovated (fig. 3).
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the content of clay, this soil becomes sticky when wet. The stickiness increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- Because of the stickiness of the soil, the use of equipment for site preparation is restricted to the drier periods.

Dwellings and small commercial buildings

- The moderate shrinking and swelling of the soil may crack foundations and

basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

NeD3—Needmore silty clay loam, 12 to 20 percent slopes, severely eroded

Map Unit Composition

Major components:
Needmore and similar soils: 80 percent

Contrasting inclusions:
Frederick soils—10 percent
Caneyville soils—4 percent
Weikert soils—3 percent
Culleoka soils—3 percent

Major Component Descriptions

Landform: Hillsides on uplands
Position on landform: Shoulder slopes and backslopes
Parent material: Clayey residuum weathered from calcareous shale
Slope: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 2.0 inches)
Shrink-swell potential: High (about 7.5 LEP)
Seasonal water table: None
Runoff class: High

Typical Profile

Surface layer:
0 to 3 inches—brown silty clay loam

Subsoil:
3 to 22 inches—reddish yellow silty clay and clay

Bedrock:
22 inches—weathered calcareous shale

Use and Management Considerations

Cropland

- This soil is generally not suited to cropland.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during the construction of haul roads and log landings.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the content of clay, this soil becomes sticky when wet. The stickiness increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The slope restricts the use of equipment in preparing sites for planting and seeding.
- Stones restrict the use of equipment in preparing sites for planting or seeding.
- Because of the stickiness of the soil, the use of equipment for site preparation is restricted to the drier periods.

Dwellings and small commercial buildings

- The severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

Interpretive Group

Land capability classification (non-irrigated areas): 6e

NfD—Needmore silt loam, 6 to 20 percent slopes, very rocky

Map Unit Composition

Major components:
Needmore and similar soils: 80 percent

Contrasting inclusions:
Rock outcrop—10 percent
Caneyville soils—5 percent
Frederick soils—5 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits and backslopes
Parent material: Clayey residuum weathered from calcareous shale
Slope: 6 to 20 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 2.5 inches)
Shrink-swell potential: High (about 7.5 LEP)
Seasonal water table: None
Runoff class: High

Typical Profile

Surface layer:
0 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 24 inches—strong brown and yellowish red silty clay

Bedrock:
24 inches—weathered calcareous shale

Use and Management Considerations

Cropland

- This soil is generally not suited to cropland.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- This soil provides poor summer pasture.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- Because of the stickiness of the soil, the use of equipment for site preparation is restricted to the drier periods.

Dwellings and small commercial buildings

- The severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope and rock outcrops on the surface influence the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope and rock outcrops on the surface, special design and installation techniques are needed for the effluent distribution lines.

Interpretive Group

Land capability classification (non-irrigated areas): 6e

Nk—Newark silt loam, occasionally flooded

Map Unit Composition

Major components:
Newark and similar soils: 85 percent

Contrasting inclusions:
Melvin soils—5 percent
Yosemite soils—5 percent
Nolin soils—5 percent

Major Component Description

Landform: Flood plain on river valley
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (about 0.60 in/hr)
Available water capacity to a depth of 60 inches: Very high (about 8.1 inches)
Shrink-swell potential: Low (about 2.5 LEP)
Flooding hazard: Occasional

Seasonal water table (depth, type): About 12 to 18 inches; apparent
Runoff class: Negligible

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 18 inches—yellowish brown silt loam that has strong brown and light gray redoximorphic features
18 to 30 inches—light brownish gray silt loam that has black and yellowish brown redoximorphic features

Substratum:
30 to 80 inches—light brownish gray silt loam and silty clay loam that has black, yellowish brown, and gray redoximorphic features

Use and Management Considerations

Cropland

- The careful selection and application of chemicals and fertilizers helps to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Small grain crops may be damaged by flooding in winter and spring.
- Subsurface drainage helps to lower the seasonal high water table.

Pasture and hay

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding (fig. 4).
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness may limit the use of log trucks.
- Flooding restricts the safe use of roads by log trucks.

Dwellings and small commercial buildings

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesites. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Figure 4.—An area of Newark silt loam, occasionally flooded. Plant species that are tolerant of brief periods of flooding should be selected for areas of this soil.

Septic tank absorption fields

- This soil is generally unsuited to septic tank absorption fields. The seasonal wetness and flooding greatly limit the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.
- Because of the seasonal high water table, this soil is generally unsuited to septic tank absorption fields.

Interpretive Group

Land capability classification (non-irrigated areas): 3w

No—Nolin silt loam, occasionally flooded

Map Unit Composition

Major components:
Nolin and similar soils: 85 percent

Contrasting inclusions:
Newark soils—7 percent
Lindside soils—5 percent
Chagrin soils—3 percent

Major Component Description

Landform: Flood plain on river valley
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent

Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Moderate (about 0.60 in/hr)
Available water capacity: Very high (about 8.4 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water table: More than 6 feet
Runoff class: Negligible

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 42 inches—dark yellowish brown silt loam

Substratum:
42 to 80 inches—brown silt loam

Use and Management Considerations

Cropland

- This soil is well suited to most crops (fig. 5).
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Small grain crops may be damaged by flooding in winter and spring.

Figure 5.—Corn planted in an area of Nolin silt loam, occasionally flooded. This soil is very productive and well suited to most crops.

Pasture and hay

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Flooding restricts the safe use of roads by log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesites. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to septic tank absorption fields because of the flooding. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2w

OtA—Otwood silt loam, 0 to 2 percent slopes

Map Unit Composition

Major components:
Otwood and similar soils: 85 percent

Contrasting inclusions:
Nolin soils—5 percent
Lindside soils—5 percent
Lawrence soils—5 percent

Major Component Description

Landform: Stream terraces on river valleys
Position on landform: Nearly level terrace benches
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent
Depth to restrictive feature: 18 to 36 inches to a fragipan
Drainage class: Moderately well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Moderate (about 5.8 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)

Figure 6.—Small grain stubble in an area of Otwood silt loam, 0 to 2 percent slopes.

Seasonal water table (depth, type): About 18 to 30 inches; perched
Runoff class: Low

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsurface layer:
8 to 13 inches—yellowish brown silt loam

Subsoil:
13 to 28 inches—light yellowish brown silt loam
28 to 69 inches—light yellowish brown and light brownish gray silt loam fragipan that has reddish yellow and light gray redoximorphic features
69 to 80 inches—yellowish brown silty clay loam that has reddish yellow and light gray redoximorphic features

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture (fig. 6). Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material.

Pasture and hay

- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.

- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by a dense soil layer.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be required. This soil is poorly suited to building site development, and structures may need special design for the prevention of damage from wetness.
- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Interpretive Group

Land capability classification (non-irrigated areas): 2w

OtB—Otwood silt loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Otwood and similar soils: 85 percent

Contrasting inclusions:
Lawrence soils—5 percent
Nolin soils—5 percent
Tarklin soils—5 percent

Major Component Description

Landform: Stream terrace on river valley
Position on landform: Undulating terrace benches
Parent material: Fine-silty alluvium
Slope: 2 to 6 percent
Depth to restrictive feature: 18 to 36 inches to a fragipan
Drainage class: Moderately well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Moderate (about 5.8 inches)

Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table (depth, type): About 18 to 30 inches; perched
Runoff class: Low

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsurface layer:
8 to 13 inches—yellowish brown silt loam

Subsoil:
13 to 28 inches—light yellowish brown silt loam
28 to 69 inches—light yellowish brown and light brownish gray silt loam fragipan that has reddish yellow and light gray redoximorphic features
69 to 80 inches—yellowish brown silty clay loam that has reddish yellow and light gray redoximorphic features

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material.

Pasture and hay

- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by a dense soil layer.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be required. This soil is poorly suited to building site

development, and structures may need special design for the prevention of damage from wetness.
- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

OtC2—Otwood silt loam, 6 to 12 percent slopes, eroded

Map Unit Composition

Major components:
Otwood and similar soils: 85 percent

Contrasting inclusions:
Etowah soils—5 percent
Nolin soils—5 percent
Tarklin soils—5 percent

Major Component Description

Landform: Stream terrace on river valley
Position on landform: Convex terrace side slopes
Parent material: Fine-silty alluvium
Slope: 6 to 12 percent
Depth to restrictive feature: 18 to 30 inches to a fragipan
Drainage class: Moderately well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Moderate (about 4.5 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table (depth, type): 16 to 24 inches; perched
Runoff class: Medium

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown silt loam

Subsoil:
4 to 24 inches—strong brown and yellowish brown silt loam
24 to 52 inches—yellowish brown and light yellowish brown silty clay loam fragipan that has reddish yellow and light gray redoximorphic features
52 to 80 inches—yellowish brown silty clay loam that has reddish yellow and light gray redoximorphic features

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by a dense soil layer.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Dwellings and small commercial buildings

- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be required. This soil is poorly suited to building site development, and structures may need special design for the prevention of damage from wetness.
- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

Pq—Pits, quarry

Map Unit Composition

Major components:
Pits, quarry and similar soils: 100 percent

Major Component Description

This map unit consists of an open quarry from which limestone rock has been removed. The soil is excavated and set aside for reclaimation or sold as topsoil or fill material. The pit consists of nearly vertical walls of limestone rock and are 50 feet or more deep. The rock material is removed and processed into various sizes for commercial use. The processed and graded rock is used in the construction and highway industries.

Interpretive Group

Land capability classification (non-irrigated areas): None assigned

PrB—Pricetown silt loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Pricetown and similar soils: 85 percent

Contrasting inclusions:
Frederick soils—5 percent
Sano soils—4 percent
Teddy soils—4 percent
Lonewood soils—2 percent

Major Component Description

Landform: Undulating ridge on upland
Position on landform: Summits
Parent material: Fine-silty loess over clayey residuum
Slope: 2 to 6 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Slow (about 0.06 in/hr)
Available water capacity to a depth of 60 inches: High (about 7.1 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: Low

Typical Profile

Surface layer:
0 to 7 inches—brown silt loam

Subsoil:
7 to 30 inches—yellowish brown silt loam
30 to 42 inches—yellowish red silty clay loam
42 to 80 inches—yellowish red clay

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- The moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

PrC—Pricetown silt loam, 6 to 12 percent slopes

Map Unit Composition

Major components:
Pricetown and similar soils: 85 percent

Contrasting inclusions:
- Frankstown soils—5 percent
- Frederick soils—5 percent
- Lonewood soils—5 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Summits and shoulder slopes
Parent material: Fine-silty loess over clayey residuum
Slope: 6 to 12 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Slow (about 0.06 in/hr)
Available water capacity: High (about 7.1 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 7 inches—brown silt loam

Subsoil:
7 to 30 inches—yellowish brown silt loam
30 to 42 inches—yellowish red silty clay loam
42 to 80 inches—yellowish red clay

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Dwellings and small commercial buildings

- The moderate shrinking and swelling of the soil may crack foundations and

basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

RnB—Riney loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Riney and similar soils: 85 percent

Contrasting inclusions:
Frederick soils—7 percent
Lonewood soils—5 percent
Pricetown soils—3 percent

Major Component Description

Landform: Undulating ridges on uplands
Position on landform: Summits
Parent material: Fine-loamy residuum weathered from sandstone
Slope: 2 to 6 percent
Depth to restrictive feature: 48 to 60 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: High (about 7.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Low

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 32 inches—yellowish red and red clay loam
32 to 42 inches—red sandy clay loam

Substratum:
42 to 50 inches—red channery sandy loam

Bedrock:
50 inches—weathered sandstone

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The careful selection and application of chemicals and fertilizers helps to minimize the possibility of ground-water contamination.

Pasture and hay

- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- This soil is well suited to use as building sites.

Septic tank absorption fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of properly installing the effluent distribution lines.
- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

RnC—Riney loam, 6 to 12 percent slopes

Map Unit Composition

Major components:
Riney and similar soils: 85 percent

Contrasting inclusions:
Frederick soils—10 percent
Gilpin soils—3 percent
Lonewood soils—2 percent

Major Component Descriptions

Landform: Rolling ridge on upland
Position on landform: Summits and shoulder slopes
Parent material: Fine-loamy residuum weathered from sandstone
Slope: 6 to 12 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: High (about 7.2 inches)

Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Medium

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 32 inches—yellowish red and red clay loam
32 to 42 inches—red sandy clay loam

Substratum:
42 to 50 inches—red channery sandy loam

Bedrock:
50 to 56 inches—weathered sandstone

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The careful selection and application of chemicals and fertilizers helps to minimize the possibility of ground-water contamination.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Dwellings and small commercial buildings

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of properly installing the effluent distribution lines.
- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

Ro—Robertsville silt loam, rarely flooded

Map Unit Composition

Major components:
Robertsville and similar soils: 85 percent

Contrasting inclusions:
Lawrence soils—5 percent
Melvin soils—5 percent
Newark soils—5 percent

Major Component Description

Landform: Stream terraces on river valleys
Position on landform: Level benches
Parent material: Fine silty alluvium
Slope: 0 to 2 percent
Depth to restrictive feature: About 15 to 30 inches to a fragipan
Drainage class: Poorly drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Low (about 3.3 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: Rare
Seasonal water table (depth, type): About 0 to 8 inches; perched
Runoff class: Very low

Typical Profile

Surface layer:
0 to 8 inches—dark gray silt loam

Subsoil:
8 to 16 inches—gray silt loam that has yellowish brown redoximorphic features
16 to 40 inches—gray silt loam fragipan that has yellowish brown, pale brown, and light brownish gray redoximorphic features
40 to 50 inches—gray silty clay loam that has yellowish brown redoximorphic features

Substratum:
50 to 80 inches—gray silty clay loam that has yellowish brown and strong brown redoximorphic features

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The careful selection and application of chemicals and fertilizers helps to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

- The movement of water into subsurface drains is restricted.
- The rooting depth of crops is restricted by dense soil material.

Pasture and hay

- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The rooting depth of plants may be restricted by a dense soil layer.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Under unusual weather conditions, this soil is subject to rare flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesites. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally poorly suited to septic tank absorption fields. The flooding on rare occasions limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.
- Because of the seasonal high water table, this soil is generally unsuited to septic tank absorption fields.

Interpretive Group

Land capability classification (non-irrigated areas): 4w

RpD—Rock outcrop-Caneyville complex, 6 to 20 percent slopes

Map Unit Composition

Major components:
Rock outcrop: 65 percent
Caneyville and similar soils: 25 percent

Contrasting inclusions:
Frederick soils—10 percent

Major Component Descriptions

Rock outcrop

Landform: Hillslopes in uplands
Parent material: Limestone bedrock
Position on landform: Side slopes
Slope: 6 to 20 percent
Seasonal water table: None
Runoff class: Very high

Caneyville

Landform: Hillslopes in uplands
Position on landform: Side slopes
Parent material: Clayey residuum weathered from limestone
Slope: 6 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Moderate (about 4.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: Very high

Typical Profiles

Rock outcrop

This part of the map unit consists of large outcrops of limestone that extend from several inches to 3 feet above the soil surface in horizontal bands or occur as individual blocks of limestone protruding from the surface.

Caneyville

Surface layer:
0 to 5 inches—brown silt loam

Subsurface layer:
5 to 12 inches—strong brown silty clay loam

Subsoil:
12 to 30 inches—yellowish red silty clay

Bedrock:
30 inches—limestone

Use and Management Considerations

Cropland

- This map unit generally is not suited to cropland.

Pasture and hay

- Rock outcrops restrict the use of some mechanical planting equipment (fig. 7).

Dwellings and small commercial buildings

- Rock outcrops influence the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- The moderate shrinking and swelling of the soil may crack foundations and

Figure 7.—Pasture in an area of Rock outcrop-Caneyville complex, 6 to 20 percent slopes. Rock outcrops restrict the use of planting equipment.

basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

- The high content of clay below the surface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- Because of the rock outcrops, slope, and restricted permeability of the subsoil, this map unit is generally unsuited to use as a site for septic tank absorption fields.

Interpretive Group

Land capability classification (non-irrigated areas): 6s

RsF—Rohan channery silt loam, 20 to 60 percent slopes

Map Unit Composition

Major components:
Rohan and similar soils: 90 percent

Contrasting inclusions:
Carpenter soils—5 percent
Garmon soils—5 percent

Major Component Description

Landform: Hillsides on uplands
Position on landform: Backslopes

Parent material: Loamy residuum weathered from shale
Slope: 20 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Very low (about 1.0 inch)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table: None
Runoff class: Very high

Typical Profile

Surface layer:
0 to 4 inches—brown channery silt loam

Subsoil:
4 to 16 inches—dark yellowish brown very channery silty clay loam

Bedrock:
16 inches—black shale

Use and Management Considerations

Cropland

- This soil is generally not suited to cropland.

Pasture and hay

- This soil is generally not recommended for pasture.
- Because of the slope, establishing pastures is generally impractical.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during the construction of haul roads and log landings.
- The limited available water capacity inhibits root development and increases the seedling mortality rate.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of harvesting and mechanical planting equipment.
- Because of the slope, the use of equipment in preparing sites for planting and seeding is not practical.
- Because of the slope, the use of mechanical planting equipment is not practical.
- Because of the content of rock fragments, the use of mechanical planting equipment is not practical.
- Stones restrict the use of equipment in preparing sites for planting or seeding.

Dwellings and small commercial buildings

- The slope and depth to bedrock influence the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, limited depth to bedrock, and hazard of seepage into adjacent areas, this soil is generally unsuited to septic tank absorption fields.

Interpretive Group

Land capability classification (non-irrigated areas): 7s

Sa—Sano silt loam, 1 to 4 percent slopes

Map Unit Composition

Major components:
Sano and similar soils: 85 percent

Contrasting inclusions:
Teddy soils—6 percent
Lawrence soils—4 percent
Pricetown soils—3 percent
Lonewood soils—2 percent

Major Component Descriptions

Landform: Gently sloping ridges on uplands
Position on landform: Broad undulating summits
Parent material: Loess over residuum weathered from limestone or siltstone
Slope: 1 to 4 percent
Depth to restrictive feature: 18 to 36 inches to a fragipan
Drainage class: Moderately well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Moderate (about 5.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Depth to seasonal high water table: About 18 to 30 inches; perched
Runoff class: Very low

Typical Profile

Surface layer:
0 to 10 inches—brown silt loam

Subsoil:
10 to 21 inches—light yellowish brown silt loam
21 to 28 inches—olive yellow and gray silt loam that has strong brown and black redoximorphic features
28 to 47 inches—light gray, yellowish brown, and strong brown silt loam fragipan that has red and black redoximorphic features
47 to 81 inches—brownish yellow silt loam fragipan that has red, greenish black, and black redoximorphic features

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic matter into the surface layer increases

the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pasture and hay

- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be required. This soil is poorly suited to building site development, and structures may need special design in order to prevent damage from wetness.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Interpretive Group

Land capability classification (non-irrigated areas): 2w

Sk—Skidmore gravelly loam, frequently flooded

Map Unit Composition

Major components:
Skidmore and similar soils: 85 percent

Contrasting inclusions:
Yosemite soils—5 percent
Nolin soils—5 percent
Chagrin soils—5 percent

Major Component Description

Landform: Flood plains on river valleys
Parent material: Gravelly alluvium

Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Slowest permeability to a depth of 60 inches: Moderately rapid (about 2.00 in/hr)
Available water capacity: Low (about 3.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: Frequent
Seasonal water table (depth, type): About 48 to 60 inches; apparent
Runoff class: Negligible

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown gravelly loam

Subsoil:
6 to 28 inches—dark yellowish brown and yellowish brown very gravelly sandy loam

Substratum:
28 to 81 inches—yellowish brown extremely gravelly sandy loam

Use and Management Considerations

Cropland

- Crops are commonly not grown because of the frequent flooding.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.

Pasture and hay

- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Sandy layers increase the maintenance of haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Flooding restricts the safe use of roads by log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- Because of the content of rock fragments, the use of mechanical planting equipment is not practical.
- Stones restrict the use of equipment in preparing sites for planting or seeding.

Dwellings and small commercial buildings

- The frequent flooding greatly increases the risk of damage associated with floodwaters. Because of the flooding, this soil is generally unsuited to building site development.

Septic tank absorption fields

- This soil is generally unsuited to septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 2w

TaB—Tarklin gravelly silt loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Tarklin and similar soils: 80 percent

Contrasting inclusions:
Otwood soils—10 percent
Carpenter soils—5 percent
Lawrence soils—5 percent

Major Component Description

Landform: Terraces on river valleys
Position on landform: Undulating terrace benches
Parent material: Fine-loamy alluvium
Slope: 2 to 6 percent
Depth to restrictive feature: 18 to 30 inches to a fragipan
Drainage class: Moderately well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Low (about 3.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table (depth, type): About 16 to 28 inches; perched
Runoff class: Low

Typical Profile

Surface layer:
0 to 7 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
7 to 12 inches—yellowish brown gravelly silt loam

Subsoil:
12 to 20 inches—light yellowish brown gravelly silt loam
20 to 38 inches—light yellowish brown gravelly silt loam fragipan that has yellowish brown and light brownish gray redoximorphic features
38 to 60 inches—yellowish brown very gravelly silt loam fragipan that has strong brown and light brownish gray redoximorphic features

Substratum:
60 to 81 inches—yellowish brown very gravelly silty clay loam that has strong brown and light brownish gray redoximorphic features

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The rooting depth of crops is restricted by dense soil material.

Pasture and hay

- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by a dense soil layer.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Rock fragments obstruct the use of mechanical planting equipment.

Dwellings and small commercial buildings

- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be required. This soil is poorly suited to building site development, and structures may need special design for the prevention of damage from wetness.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

TaC—Tarklin gravelly silt loam, 6 to 12 percent slopes

Map Unit Composition

Major components:
Tarklin and similar soils: 85 percent

Contrasting inclusions:
    Carpenter soils—10 percent
    Otwood soils—5 percent

Major Component Description

Landform: Terraces on river valleys
Position on landform: Convex terrace side slopes
Parent material: Fine-loamy alluvium
Slope: 6 to 12 percent
Depth to restrictive feature: 18 to 30 inches to a fragipan
Drainage class: Moderately well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Low (about 3.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table (depth, type): About 16 to 28 inches; perched
Runoff class: Medium

Typical Profile

Surface layer:
0 to 7 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
7 to 12 inches—yellowish brown gravelly silt loam

Subsoil:
12 to 20 inches—light yellowish brown gravelly silt loam
20 to 38 inches—light yellowish brown gravelly silt loam fragipan that has yellowish brown and light brownish gray redoximorphic features
38 to 60 inches—yellowish brown very gravelly silt loam fragipan that has strong brown and light brownish gray redoximorphic features

Substratum:
60 to 81 inches—yellowish brown very gravelly silty clay loam that has strong brown and light brownish gray redoximorphic features

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The rooting depth of crops is restricted by dense soil material.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by a dense soil layer.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.

- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.

Dwellings and small commercial buildings

- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be required. This soil is poorly suited to building site development, and structures may need special design for the prevention of damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Interpretive Group

Land capability classification (non-irrigated areas): 3e

TeB—Teddy silt loam, 2 to 6 percent slopes

Map Unit Composition

Major components:
Teddy and similar soils: 90 percent

Contrasting inclusions:
 Pricetown soils—4 percent
 Sano soils—4 percent
 Johnsburg soils—2 percent

Major Component Description

Landform: Ridges on uplands
Position on landform: Broad summits
Parent material: Fine-loamy deposits over clayey residuum from limestone
Slope: 2 to 6 percent
Depth to restrictive feature: 18 to 36 inches to a fragipan
Drainage class: Moderately well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Moderate (about 4.7 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water table (depth, type): About 18 to 30 inches; perched
Runoff class: Low

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam

Subsoil:
9 to 24 inches—yellowish brown silt loam
24 to 48 inches—yellowish brown silt loam and clay loam fragipan that has grayish brown, strong brown, and black redoximorphic features
48 to 80 inches—red silty clay

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material.

Pasture and hay

- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by a dense soil layer.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

Dwellings and small commercial buildings

- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be required. This soil is poorly suited to building site development, and structures may need special design for the prevention of damage from wetness.

Septic tank absorption fields

- The restricted permeability limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Interpretive Group

Land capability classification (non-irrigated areas): 2e

Ud—Udarents-Urban land complex, 2 to 20 percent slopes

Map Unit Composition

Major components:
Udarents and similar soils: 60 percent
Urban land: 40 percent

Major Component Descriptions

Udarents

Landform: Areas that have been cut, filled, and graded
Position on landform: Areas along the Cumberland Parkway
Slope: 2 to 20 percent
Seasonal water table: None
Runoff class: High

Urban land

Landform: Paved roadways, exit ramps, parking areas, and overpasses
Position on landform: Areas along the Cumberland Parkway
Slope: 2 to 20 percent
Seasonal water table: None
Runoff class: High

Typical Profiles

Udarents

Udarents consist of loamy material from undetermined sources containing mixtures of topsoil, subsoil, and/or gravel and stones that have been graded and compacted. There is no definite arrangement of layers because of the mixing during cut-and-fill operations. Because of the variability of the material, a typical profile is not given.

Urban land

Urban land consists of highways, parking lots, commercial buildings, and other urban structures.

Use and Management Considerations

An onsite investigation is needed to determine the suitability of this map unit for specific uses.

Interpretive Group

Land capability classification (non-irrigated areas): None assigned

Ur—Urban land

Map Unit Composition

Major components:
Urban land: 80 percent

Contrasting inclusions:
Udarents—20 percent

Major Component Description

Landform: Areas of commercial development

Position on landform: Areas in and around the perimeter of Columbia, Kentucky
Slope: 2 to 30 percent
Seasonal water table: None
Runoff class: High or very high

Typical Profile

Urban land consists of highways, parking lots, commercial buildings, and other urban structures. Because of the variability of the material, a typical profile is not given.

Use and Management Considerations

An onsite investigation is needed to determine the suitability of this map unit for specific uses.

Interpretive Group

Land capability classification (non-irrigated areas): None assigned

Us—Urban land-Frederick-Pricetown complex, 2 to 20 percent slopes

Map Unit Composition

Major components:
Urban land: 50 percent
Frederick and similar soils: 20 percent
Pricetown and similar soils: 20 percent

Contrasting inclusions:
Udarents—10 percent

Major Component Descriptions

Urban land

Landform: Areas of significant commercial and residential development
Position on landform: Areas in and around the perimeter of Columbia, Kentucky
Slope: 2 to 20 percent
Seasonal water table: None
Runoff class: Very high

Frederick

Landform: Ridges on uplands
Position on landform: Areas in and around the perimeter of Columbia, Kentucky
Parent material: Clayey residuum weathered from limestone
Slope: 2 to 20 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: High (about 6.3 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: High

Pricetown

Landform: Ridges on uplands
Position on landform: Areas in and around the perimeter of Columbia, Kentucky

Parent material: Fine-silty loess over clayey residuum
Slope: 2 to 20 percent
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Slow (about 0.06 in/hr)
Available water capacity: High (about 7.1 inches)
Shrink-swell potential: Moderate (about 4.5 LEP)
Seasonal water table: None
Runoff class: High

Typical Profiles

Urban land

Urban land consists of highways, driveways, parking lots, buildings, and other urban structures. Because of the variability of the material, a typical profile is not given.

Frederick

Surface layer:
0 to 9 inches—dark yellowish brown silt loam

Subsoil:
9 to 18 inches—strong brown silty clay loam
18 to 36 inches—yellowish red silty clay
36 to 80 inches—yellowish red and reddish yellow clay

Pricetown

Surface layer:
0 to 7 inches—brown silt loam

Subsoil:
7 to 30 inches—yellowish brown silt loam
30 to 42 inches—yellowish red silty clay loam
42 to 80 inches—yellowish red clay

Use and Management Considerations

An onsite investigation is needed to determine the suitability of this map unit for specific uses.

Interpretive Group

Land capability classification (non-irrigated areas): None assigned

Uw—Urban land-Weikert-Culleoka complex, 2 to 20 percent slopes

Map Unit Composition

Major components:
Urban land: 50 percent
Weikert and similar soils: 20 percent
Culleoka and similar soils: 20 percent

Contrasting inclusions:
Udarents—10 percent

Major Component Descriptions

Urban land

Landform: Areas of significant commercial and residential development
Position on landform: Areas in and around the perimeter of Columbia, Kentucky
Slope: 2 to 20 percent
Seasonal water saturation: None
Runoff class: Very high

Weikert

Landform: Ridges on uplands
Position on landform: Areas in and around the perimeter of Columbia, Kentucky
Parent material: Fine-loamy residuum weathered from sedimentary rock
Slope: 2 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Very low (about 1.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water saturation: None
Runoff class: Medium

Culleoka

Landform: Ridges on uplands
Position on landform: Areas in and around the perimeter of Columbia, Kentucky
Parent material: Fine-loamy residuum weathered from limestone and siltstone
Slope: 2 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 3.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water saturation: None
Runoff class: Medium

Typical Profiles

Urban land

Urban land consists of highways, driveways, parking lots, buildings, and other urban structures. Because of the variability of the material, a typical profile is not given.

Weikert

Surface layer:
0 to 7 inches—brown channery silt loam

Subsoil:
7 to 15 inches—yellowish brown very channery silt loam

Bedrock:
15 to 25 inches—weathered siltstone
25 inches—hard siltstone

Culleoka

Surface layer:
0 to 13 inches—brown channery silt loam

Subsoil:
13 to 36 inches—yellowish brown channery silt loam

Bedrock:
36 to 46 inches—hard siltstone

Use and Management Considerations

An onsite investigation is needed to determine the suitability of this map unit for specific uses.

Interpretive Group

Land capability classification (non-irrigated areas): None assigned

W—Water

Map Unit Composition

Major components:
Water: 100 percent

Major Component Description

This map unit consists of small to large constructed or natural bodies of water. It includes small tributaries, creeks, and rivers and water areas at the head of drainageways and in depressions. It occurs throughout the survey area.

Use and Management Considerations

This map unit is used for fishing, canoeing, and other recreational activities; as a source of municipal and irrigation water storage; and for fire protection.

Interpretive Group

Land capability classification (non-irrigated areas): None assigned

WcC—Weikert-Culleoka complex, 6 to 12 percent slopes

Map Unit Composition

Major components:
Weikert and similar soils: 55 percent
Culleoka and similar soils: 35 percent

Contrasting inclusions:
- Frankstown soils—5 percent
- Gilpin soils—5 percent

Major Component Descriptions

Weikert

Landform: Ridges on uplands
Position on landform: Summits and shoulder slopes
Parent material: Fine-loamy residuum weathered from sedimentary rock
Slope: 6 to 12 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Very low (about 1.1 inches)

Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water saturation: None
Runoff class: Low

Culleoka

Landform: Ridges on uplands
Position on landform: Summits and shoulder slopes
Parent material: Fine-loamy residuum weathered from limestone and siltstone
Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 3.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water saturation: None
Runoff class: Low

Typical Profiles

Wiekert

Surface layer:
0 to 7 inches—brown channery silt loam

Subsoil:
7 to 15 inches—yellowish brown very channery silt loam

Bedrock:
15 to 25 inches—weathered siltstone
25 inches—hard siltstone

Culleoka

Surface layer:
0 to 13 inches—brown channery silt loam

Subsoil:
13 to 36 inches—yellowish brown channery silt loam

Bedrock:
36 inches—hard siltstone

Use and Management Considerations

Cropland

- These soils are generally not suited to cropland.
- Because of the slope, erosion hazard, low available water capacity, and depth to bedrock, cultivation is generally impractical.

Pasture and hay

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and a vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- These soils provide poor summer pasture.

Woodland

- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- Because of the content of rock fragments, the use of mechanical planting equipment is not practical.
- Stones restrict the use of equipment in preparing sites for planting or seeding.

Dwellings and small commercial buildings

- The slope and depth to bedrock influence the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope and depth to bedrock, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Interpretive Group

Land capability classification (non-irrigated areas): 6s

WcD—Weikert-Culleoka complex, 12 to 20 percent slopes

Map Unit Composition

Major components:
Weikert and similar soils: 55 percent
Culleoka and similar soils: 35 percent

Contrasting inclusions:
Frankstown soils—5 percent
Gilpin soils—5 percent

Major Component Descriptions

Weikert

Landform: Hillsides on uplands
Position on landform: Shoulder slopes
Parent material: Fine-loamy residuum weathered from sedimentary rock
Slope: 12 to 20 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Very slow (about 0.00 in/hr)
Available water capacity: Very low (about 1.1 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water saturation: None
Runoff class: Low

Culleoka

Landform: Ridges on uplands
Position on landform: Shoulder slopes
Parent material: Fine-loamy residuum weathered from limestone and siltstone
Slope: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Slowest permeability to a depth of 60 inches: Impermeable (about 0.00 in/hr)
Available water capacity: Low (about 3.0 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Seasonal water saturation: None
Runoff class: Low

Typical Profiles

Weikert

Surface layer:
0 to 7 inches—brown channery silt loam

Subsoil:
7 to 15 inches—yellowish brown very channery silt loam

Bedrock:
15 to 25 inches—weathered siltstone
25 inches—hard siltstone

Culleoka

Surface layer:
0 to 13 inches—brown channery silt loam

Subsoil:
13 to 36 inches—yellowish brown channery silt loam

Bedrock:
36 inches—hard siltstone

Use and Management Considerations

Cropland

- These soils are generally not suited to cropland.

Pasture and hay

- These soils are generally not recommended for pasture.

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during the construction of haul roads and log landings.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low soil strength increases the cost of constructing haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of the low soil strength, harvesting equipment may be difficult to operate and damage may result. The low soil strength may create unsafe conditions for log trucks.

- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- Because of the content of rock fragments, the use of mechanical planting equipment is not practical.
- The slope restricts the use of equipment in preparing sites for planting and seeding.
- Stones restrict the use of equipment in preparing sites for planting or seeding.

Dwellings and small commercial buildings

- The slope and depth to bedrock influence the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope and depth to bedrock, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Interpretive Group

Land capability classification (non-irrigated areas): 7s

Yo—Yosemite gravelly silt loam, frequently flooded

Map Unit Composition

Major components:
Yosemite and similar soils: 85 percent

Contrasting inclusions:
 Newark soils—10 percent
 Skidmore soils—5 percent

Major Component Description

Landform: Flood plains on valleys
Parent material: Gravelly alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability to a depth of 60 inches: Moderately rapid (about 2.00 in/hr)
Available water capacity: Low (about 3.2 inches)
Shrink-swell potential: Low (about 1.5 LEP)
Flooding hazard: Frequent
Seasonal water saturation (depth, kind of water table): About 12 to 18 inches; apparent
Runoff class: Negligible

Typical Profile

Surface layer:
0 to 9 inches—dark brown gravelly silt loam

Subsoil:
9 to 17 inches—yellowish brown very gravelly loam that has reddish yellow and light brownish gray redoximorphic features
17 to 30 inches—light brownish gray very gravelly loam that has yellowish brown redoximorphic features

Substratum:
30 to 80 inches—light brownish gray extremely gravelly sandy loam that has yellowish brown redoximorphic features

Use and Management Considerations

Cropland

- Crops are commonly not grown because of frequent flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Subsurface drainage helps to lower the seasonal high water table.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The careful selection and application of chemicals and fertilizers helps to minimize the possibility of ground-water contamination.

Pasture and hay

- Plants may suffer from moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low soil strength may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness may limit the use of log trucks.
- Flooding restricts the safe use of roads by log trucks.
- Because of the content of rock fragments, the use of mechanical planting equipment is not practical.
- Stones restrict the use of equipment in preparing sites for planting or seeding.

Dwellings and small commercial buildings

- The frequent flooding greatly increases the risk of damage associated with floodwaters. Because of the flooding, this soil is generally unsuited to building site development.

Septic tank absorption fields

- This soil is generally unsuited to septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.

Interpretive Group

Land capability classification (non-irrigated areas): 3w

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to help 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.

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

Interpretive Ratings

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

Rating Class Terms

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

Numerical Ratings

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

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Yields per Acre

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

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

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable 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 residues, 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 table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide more 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 production of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for crop production, the risk of damage by erosion if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major land shaping that would change slope, depth, or other characteristics of the soils, nor do they include major reclamation projects. Capability classification is not an interpretation designed to show suitability and limitations of groups of soils for forestry, for engineering, or for environmental or residential purposes.

In the capability system, soils are generally grouped at two levels—capability class and subclass (11).

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 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 are unsuited for commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w,* or *s* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

In classes 1 and 8 there are no subclasses. Class 5 contains only the subclasses indicated by *w* or *s,* because the soils in class 5 are subject to little or no erosion. They have other significant limitations that restrict their use to pasture, forestland, wildlife habitat, or recreation.

The acreage of soils in each capability class or subclass is shown in table 6. The capability classification of map units in this survey area is given in the section “Detailed Soil Map Units” and in the yields table.

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, pasture, forest, or idle 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 where proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it is not frequently flooded during the growing season or is protected from flooding. Slope ranges from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

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

The map units in the survey area that are considered prime farmland are listed in table 7. This list does not constitute a recommendation for a particular land use. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Forest Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for timber production. They show the potential productivity of the soils and rate the soils according to the limitations that affect various aspects of forest management.

Forest Productivity

In table 8, 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 co-dominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Common trees are those that forest managers generally favor in intermediate or improvement cuttings and are selected on the basis of soil suitability, growth rate, quality, value, and current marketability. More detailed information regarding site index is available in the "National Forestry Manual" *(9)*, which is available at the local office of the Natural Resources Conservation Service or on the Internet.

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

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.

Forest Management

In table 9, parts I through V, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming these unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

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

Rating class terms for fire damage, utilized in substory management, and seedling mortality are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available at the local office of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forestry equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and offsite damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for 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. The soils are described as well suited, moderately well suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for 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 soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table or bedrock, soil reaction, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

The soils of the survey area are rated in table 10, parts I and II, according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *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. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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

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

The 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 ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a fragipan are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a fragipan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a fragipan, permeability, and toxic substances in the soil.

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

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

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

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a fragipan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

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 the appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 11, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

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

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are tall fescue, bermudagrass, orchardgrass, ladino clover, annual lespedeza, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are tall bluestem, goldenrod, beggarweed, panicum, carpetgrass, switchgrass, greenbrier, and eastern grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, yellow-poplar, wild cherry, sweetgum, hawthorn, dogwood, hickory, and blackberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the rooting zone, available water capacity, and wetness. Examples of coniferous plants are pine and eastern red cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wild rice, rushes, sedges, cattails, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

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

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

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, red fox, raccoon, opossum, skunk, and white-tail deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, blue heron, shore birds, muskrat, otter, mink, and beaver (fig. 8).

Engineering

This section provides information for planning land uses related to urban and residential 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 estimated data and test data in the “Soil Properties” section.

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

State ordinances and local regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Complying with local ordinances and regulations should be a consideration in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index,

Figure 8.—An area of Melvin silt loam, ponded. This soil provides ideal wetland habitat for waterfowl and aquatic wildlife.

soil reaction, depth to bedrock, hardness of bedrock, soil wetness, depth to a water table, ponding, slope, 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, corrosively, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

In a general way, 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, fill material, and topsoil; plan drainage 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 about the soils in this survey area, depending upon the use intended and the degree of confidence required.

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 modifications, performance after construction, and maintenance. Table 12, parts I and II, show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the 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. *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. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, 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 depth to a water table, ponding, flooding, slope, depth to bedrock or fragipan, hardness of bedrock or a fragipan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, 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 depth to a water table, ponding, flooding, slope, depth to bedrock or a fragipan, hardness of bedrock or a fragipan, 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 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 (tar). 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 and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a fragipan, hardness of bedrock or a fragipan, and the amount and size of rock fragments. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), linear extensibility (shrink-swell potential), depth to a water table, and ponding or flooding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a fragipan, hardness of bedrock or a fragipan, 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 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.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a fragipan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 13, parts I and II, show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfills. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *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. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface 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 concerns. Permeability, depth to a water table, ponding, depth to bedrock or a restrictive layer, and flooding affect absorption of the effluent. Stones and boulders, hard bedrock, or a dense fragipan interfere with installation. Excessive slope can cause lateral seepage and surfacing of the effluent in downslope areas in addition to installation difficulties.

Some soils are underlain by loose sand, gravel, or highly fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated or seepage may occur in downslope areas.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a fragipan, 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 very 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 in karst landscapes, if highly 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 overflows the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and fragipans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a fragipan 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 fragipan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, 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, an onsite investigation will be needed.

Hard bedrock, creviced bedrock, or highly fractured rock strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a fragipan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if highly fractured bedrock or a 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 or in fractured bedrock layers in the steeper areas and cause 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. Some of these properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock, 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 or any root-restricting layer 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

Table 14, parts I and II, give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated *good, fair,* or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

The soils are rated as a *good, fair,* or *poor* source of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 14, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence in such a way that the reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined or borrowed areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion, stability of the surface and subsoil, and the productive potential of the reconstructed soil. Some of these properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; content of organic matter; and other features that dominantly affect fertility and productivity.

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

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

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

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock, and toxic material.

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

Water Management

Table 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; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *not limited* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *somewhat limited* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *very limited* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

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

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill.

The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

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

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

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

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics *(7)*.

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

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

Engineering Index Properties

Table 16 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

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

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

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

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

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

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

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

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

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

Physical Properties

Table 17 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

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

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 table 17, 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 table 17, 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 table 17, 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, agronomic, residential, and commercial 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, root penetration, 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 movement of water, roots, and air. Depending on soil texture, a bulk density of more than 1.4 restricts water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (Ksat) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each 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, depth to bedrock or a restrictive layer, 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 a 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 and other structures, to roads, and to plant roots. Special design and materials are needed to help overcome this limitation in construction of structures, roads, and other permanent installations.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 17, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residues to the soil, using no-till planting practices, maintaining the soil in permanent vegetative cover for long periods, spreading mulch on the surface, and by leaving duff on the surface after timber operations. 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 plants and soil organisms.

Erosion factors are shown in table 17 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 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 water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Chemical Properties

Table 18 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 in inches.

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). 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.

Water Features

Table 19 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a 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.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 19 indicates, by month, depth to the top *(upper limit)* and base *(lower limit)* of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely gray 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. The water is removed only by percolation, transpiration, or evaporation. Table 19 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

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

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

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding, including local and flood-gauging station records, and the relation of each soil on the landscape to historically recorded floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical and chemical properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable rooting environment. Examples are bedrock, fragipans, dense layers, and frozen layers. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(8, 10)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

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

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

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

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

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, clay activity, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, mixed, active, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” *(6)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(10)* and in “Keys to Soil Taxonomy” *(8)*. 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.

Caneyville Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow or very slow
Landform position: Shoulder slopes and hillsides
Parent material: Clayey residuum from limestone
Slope range: 6 to 40 percent
Taxonomic classification: Fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Caneyville silt loam in an area of Rock outcrop-Caneyville complex, 6 to 20 percent slopes; about 1.25 miles northwest of Columbia, 2,200 feet west of Kentucky Highway 767, about 250 feet southeast of Rocky Hill Road, in a pasture; USGS Columbia, Kentucky topographic quadrangle; lat. 37 degrees 6 minutes 51.00 seconds N. and long. 85 degrees 20 minutes 3.00 seconds W.; UTM Zone 16, 648007 meters easting, 4108828 meters northing; NAD83:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots throughout; neutral, pH 7.0; abrupt smooth boundary.

BA—5 to 12 inches; strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky structure; firm; many fine roots throughout; slightly acid, pH 6.5; abrupt smooth boundary.

Bt1—12 to 24 inches; yellowish red (5YR 5/6) silty clay; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; common medium roots throughout; 30 percent discontinuous distinct reddish brown (5YR 4/4) clay films on all faces of peds; 1 percent fine prominent spherical strongly cemented iron-manganese nodules with sharp boundaries in matrix; slightly acid, pH 6.5; clear smooth boundary.

Bt2—24 to 30 inches; yellowish red (5YR 5/6) silty clay; 3 percent fine prominent irregular pale brown (10YR 6/3), 3 percent fine prominent irregular yellow (10YR 7/6), and 4 percent fine distinct irregular strong brown (7.5YR 5/6) mottles; moderate medium angular blocky structure; firm, very sticky, very plastic; 30 percent discontinuous distinct reddish brown (5YR 4/4) clay films on all faces of peds; neutral, pH 7.0; clear smooth boundary.

R—30 inches; limestone bedrock.

Range in Characteristics

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Diagnostic feature(s): Ochric epipedon, lithic contact, and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 6
Texture—silt loam
Rock fragment content—0 to 10 percent

Reaction—pH 4.5 to 7.3
Organic matter content—1.0 to 4.0 percent

BA horizon:
Hue—5YR to 10YR
Value—5 or 6
Chroma—4 to 6
Texture—clay, silty clay loam, or silty clay
Rock fragment content—0 to 10 percent
Reaction—pH 4.5 to 7.8
Organic matter content—0.0 to 1.0 percent

Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—clay or silty clay
Rock fragment content—0 to 10 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.5 percent

Carpenter Series

Depth class: Deep or very deep
Drainage class: Well drained
Permeability: Moderate to slow
Landform position: Footslopes
Parent material: Gravelly colluvium over clayey residuum from shale and siltstone
Slope range: 6 to 40 percent
Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Ultic Hapludalfs

Typical Pedon

Carpenter gravelly silt loam in an area of Carpenter-Lenberg complex, 12 to 40 percent slopes; about 3.5 miles west of Dunville on the Dunnville Road, 1,000 feet south of the Dunnville Road, 100 feet east of a metal building, in a field; USGS Dunnville, Kentucky topographic quadrangle; lat. 37 degrees 11 minutes 33.00 seconds N. and long. 85 degrees 3 minutes 33.00 seconds W.; UTM Zone 16, 672246 meters easting, 4117984 meters northing; NAD83:

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; weak fine granular structure; very friable; common fine roots throughout; 20 percent gravel; very strongly acid; abrupt smooth boundary.

BA—6 to 14 inches; light yellowish brown (10YR 6/4) gravelly silt loam; weak fine subangular blocky structure; friable; common fine roots throughout; 20 percent gravel; very strongly acid; clear smooth boundary.

Bt1—14 to 20 inches; yellowish brown (10YR 5/4) gravelly silty clay loam; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; common fine roots throughout; 5 percent discontinuous distinct brown (10YR 5/3) clay films on all faces of peds; 30 percent gravel; very strongly acid; clear smooth boundary.

Bt2—20 to 36 inches; light brown (7.5YR 6/4) gravelly silty clay loam; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; 5 percent discontinuous distinct brown (7.5YR 5/4) clay films on all faces of peds; 25 percent gravel; very strongly acid; clear smooth boundary.

2BC—36 to 56 inches; light yellowish brown (2.5Y 6/4) silty clay; 5 percent medium distinct yellowish red (5YR 5/6) and 5 percent medium faint light brownish gray

(2.5Y 6/2) mottles; weak medium subangular blocky structure; very firm, very sticky, very plastic; 5 percent shale channers; very strongly acid; gradual smooth boundary.

2Cr—56 to 65 inches; light yellowish brown (2.5Y 6/4) weathered shale bedrock; very firm; very strongly acid.

Range in Characteristics

Depth to bedrock: 40 to 64 inches
Diagnostic feature(s): Ochric epipedon, argillic horizon, and paralithic contact
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—gravelly silt loam
Rock fragment content—15 to 35 percent
Reaction—pH 4.5 to 6.5
Organic matter content—1.0 to 4.0 percent

BA horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—gravelly silt loam
Rock fragment content—15 to 35 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 0.5 percent

Bt horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—silty clay loam, clay loam, or loam
Rock fragment content—10 to 35 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 0.5 percent

2BC horizon and 2C horizon (if it occurs):
Hue—5YR to 5Y
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Rock fragment content—0 to 25 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 0.2 percent

Chagrin Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landform position: Flood plains
Parent material: Alluvium
Slope range: 0 to 2 percent

Taxonomic classification: Fine-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Chagrin fine sandy loam, occasionally flooded; about 12.5 miles south of Columbia on Kentucky Highway 704, on east side of Kentucky Highway 704, about 100 feet north of Bledsoe Road and 75 feet west of Crocus Creek, in an idle field; USGS Amandaville, Kentucky topographic quadrangle; lat. 36 degrees 56 minutes 51.00 seconds N. and long. 85 degrees 16 minutes 55.00 seconds W.; UTM Zone 16, 652979 meters easting, 4090420 meters northing; NAD83:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and common medium roots throughout; moderately acid; abrupt smooth boundary.

Bw1—8 to 20 inches; brown (10YR 5/3) loam; weak medium subangular blocky structure; friable, non-sticky, non-plastic; common fine and common medium roots throughout; 2 percent distinct very dark brown (10YR 2/2) organic stains on surfaces along root channels; moderately acid; gradual smooth boundary.

Bw2—20 to 41 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable, non-sticky, non-plastic; moderately acid; gradual smooth boundary.

C—41 to 80 inches; yellowish brown (10YR 5/4) stratified gravelly sandy loam and loam; massive; firm, non-sticky, non-plastic; 15 percent gravel; moderately acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Ochric epipedon and cambic horizon
Surface fragments: None
Seasonal high water table (months): January, February, and March
Depth to top of water table: 48 to 72 inches

Ap horizon:
Hue—7.5YR or 10YR
Value—4
Chroma—2 to 4
Texture—fine sandy loam
Rock fragment content—0 to 10 percent
Reaction—pH 5.6 to 7.3
Organic matter content—1.5 to 3.0 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam, loam, or fine sandy loam
Rock fragment content—0 to 10 percent
Reaction—pH 5.6 to 7.3
Organic matter content—0.0 to 0.8 percent

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 6
Texture—sandy loam, gravelly sandy loam, or loam
Rock fragment content—0 to 25 percent

Reaction—pH 5.6 to 7.3
Organic matter content—0.0 to 0.5 percent

Culleoka Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landform position: Shoulders and summits
Parent material: Fine-loamy residuum from limestone and siltstone
Slope range: 2 to 20 percent
Taxonomic classification: Fine-loamy, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Culleoka channery silt loam in an area of Weikert-Culleoka complex, 6 to 12 percent slopes (fig. 9); about 4.25 miles southeast of Columbia at Joppa, 350 feet north of Kentucky Highway 92, about 50 feet east of a farm road, in a pasture; USGS Montpelier, Kentucky topographic quadrangle; lat. 37 degrees 3 minutes 16.00 seconds N. and long. 85 degrees 14 minutes 19.00 seconds W.; UTM Zone 16, 656612 meters easting, 4102359 meters northing; NAD83:

Ap—0 to 13 inches; brown (10YR 4/3) channery silt loam; moderate fine granular structure and moderate medium granular structure; very friable; many fine roots throughout; 19 percent siltstone channers; neutral; abrupt wavy boundary.

Bt1—13 to 23 inches; yellowish brown (10YR 5/6) channery silt loam; 2 percent medium distinct irregular strong brown (7.5YR 5/6) and 10 percent medium faint irregular light yellowish brown (10YR 6/4) mottles; moderate fine subangular blocky structure and moderate medium subangular blocky structure; friable, non-sticky, non-plastic; common fine roots throughout; 1 percent discontinuous distinct brown (10YR 5/4) clay films on surfaces along pores and 4 percent discontinuous distinct brown (10YR 5/4) clay films on all faces of peds; 16 percent siltstone channers; neutral; abrupt wavy boundary.

Bt2—23 to 36 inches; yellowish brown 10YR 5/6) channery silt loam; 2 percent fine prominent irregular yellowish red (5YR 5/8), 5 percent medium distinct irregular strong brown (7.5YR 5/6), and 15 percent medium distinct irregular light yellowish brown (2.5Y 6/4) mottles; moderate fine granular structure and moderate medium granular structure; firm, slightly sticky, slightly plastic; many fine roots throughout; 21 percent siltstone channers; moderately acid; clear wavy boundary.

R—36 inches; siltstone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Diagnostic feature(s): Ochric epipedon, lithic contact, and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture—channery silt loam
Rock fragment content—0 to 30 percent
Reaction—pH 5.1 to 6.0
Organic matter content—1.0 to 3.0 percent

Figure 9.—Profile of a Culleoka soil. This soil has siltstone bedrock between depths of 20 and 40 inches. The bedrock limits the rooting depth and the amount of moisture available to plants.

Bt horizon:

Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam, silty clay loam, or loam
Rock fragment content—0 to 30 percent
Reaction—pH 5.1 to 6.0
Organic matter content—0.5 to 1.0 percent

Dunning Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow

Landform position: Flood plains
Parent material: Alluvium
Slope range: 0 to 2 percent
Taxonomic classification: Fine, mixed, active, mesic Fluvaquentic Endoaquolls

Typical Pedon

Dunning silty clay loam, rarely flooded; west of Columbia on Kentucky Highway 80, on north side of Kentucky Highway 80, next to a golf course, on west side of a farm lane, in a pasture; USGS Columbia, Kentucky topographic quadrangle; lat. 37 degrees 4 minutes 46 seconds N. and long. 85 degrees 21 minutes 22 seconds W.; UTM Zone 16, 646130 meters easting, 4104954 meters northing; NAD83:

Ap—0 to 8 inches; very dark brown (10YR 2/2) silty clay loam; weak fine subangular blocky structure; friable; common fine roots throughout; 1 percent fine distinct threadlike masses of oxidized iron with clear boundaries on surfaces along root channels; neutral; clear smooth boundary.

Bg1—8 to 18 inches; very dark brown (10YR 2/2) silty clay; moderate medium angular blocky structure; firm, moderately sticky, moderately plastic; common fine roots throughout; 1 percent fine threadlike extremely weakly cemented masses of oxidized iron on surfaces along root channels and 2 percent medium spherical weakly cemented iron-manganese masses throughout; neutral; clear smooth boundary.

Bg2—18 to 36 inches; dark grayish brown (2.5Y 4/2) silty clay; moderate medium angular blocky structure; firm, moderately sticky, moderately plastic; 1 percent medium prominent strong brown (7.5YR 5/8) iron-manganese masses; neutral; abrupt smooth boundary.

Cg—36 to 72 inches; 90 percent greenish gray (10Y 6/1) and 10 percent dark olive gray (5Y 3/2) silty clay; massive; firm, very sticky, very plastic; neutral.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Redoximorphic concentrations, mollic epipedon, and endosaturation
Surface fragments: None
Seasonal high water table (months): January, February, March, April, May, and December
Depth to top of water table: 0 to 8 inches

Ap horizon:
Hue—10YR to 5Y
Value—2 or 3
Chroma—1 to 3
Texture—silty clay loam
Rock fragment content—0 to 3 percent
Reaction—pH 5.6 to 7.8
Organic matter content—2.0 to 5.0 percent
Redoximorphic features—few or common iron concentrations and few or common iron-manganese concentrations

Bg horizon:
Hue—10YR to 5GY or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay, clay, or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.6 to 7.8

Organic matter content—1.0 to 5.0 percent
Redoximorphic features—few or common iron concentrations and few or common iron-manganese concentrations

Cg horizon:
Hue—10YR to 5GY or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay or clay
Rock fragment content—0 to 14 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.5 to 1.0 percent
Redoximorphic features—few or common iron concentrations and few or common iron-manganese concentrations

Etowah Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landform position: Stream terraces
Parent material: Alluvium
Slope range: 2 to 12 percent
Taxonomic classification: Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Etowah silt loam, 2 to 6 percent slopes; about 4.6 miles south-southeast of Columbia, about 4,000 feet south of Kentucky Highway 55, about 650 feet west of the Old Glens Fork Road, 650 north of the Garrett Cemetery Road, in a hayfield; USGS Columbia, Kentucky topographic quadrangle; lat. 37 degrees 2 minutes 40.00 seconds N. and long. 85 degrees 16 minutes 28.00 seconds W.; UTM Zone 16, 653442 meters easting, 4161201 meters northing; NAD83:

Ap—0 to 12 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; very friable; common fine roots throughout; neutral; abrupt smooth boundary.

Bt1—12 to 26 inches; strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots throughout; 2 percent patchy distinct brown (7.5YR 5/4) clay films on all faces of peds; slightly acid; gradual smooth boundary.

Bt2—26 to 44 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm, slightly sticky, slighty plastic; common fine roots throughout; 10 percent patchy distinct brown (7.5YR 5/4) clay films on all faces of peds; 1 percent fine prominent spherical iron-manganese nodules throughout; strongly acid; gradual smooth boundary.

Bt3—44 to 70 inches; strong brown (7.5YR 5/6) silty clay loam; 2 percent fine distinct irregular yellowish red (5YR 4/6) and 3 percent medium distinct irregular yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; 5 percent patchy distinct brown (7.5YR 5/4) clay films on all faces of peds; strongly acid; gradual smooth boundary.

Bt4—70 to 80 inches; strong brown (7.5YR 5/6) silty clay loam; 2 percent fine distinct irregular yellow (10YR 7/8) and 5 percent medium distinct irregular yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; very firm, slightly sticky, slightly plastic; 2 percent patchy distinct brown (7.5YR 5/4) clay films on all faces of peds; very strongly acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture—silt loam
Rock fragment content—0 to 10 percent
Reaction—pH 4.5 to 5.5
Organic matter content—1.0 to 3.0 percent

Bt horizon:
Hue—7.5YR to 2.5YR
Value—4 or 5
Chroma—6 to 8
Texture—silty clay loam or clay loam
Rock fragment content—0 to 14 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.8 percent

Frankstown Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Landform position: Summits and shoulders
Parent material: Fine-loamy residuum from siltstone and limestone
Slope range: 2 to 20 percent
Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Typic Hapludults

Typical Pedon

Frankstown gravelly silt loam, 6 to 12 percent slopes, eroded; about 13 miles east of Columbia, on the east side of Millerfield Road, about 1.5 miles south of Kentucky Highway 76, about 1,100 feet east of the Millerfield Road, in a pasture; USGS Dunnville, Kentucky topographic quadrangle; lat. 37 degrees 7 minutes 37.00 seconds N. and long. 85 degrees 6 minutes 32.00 seconds W.; UTM Zone 16, 667984 meters easting, 4110619 meters northing; NAD83:

Ap—0 to 4 inches; brown (10YR 5/3) gravelly silt loam; weak fine granular structure; friable; many fine roots throughout; 15 percent fragments of siltstone and chert; slightly acid; abrupt smooth boundary.

BA—4 to 9 inches; yellowish brown (10YR 5/4) gravelly silt loam; weak medium subangular blocky structure; friable; common fine roots throughout; 15 percent fragments of siltstone and chert; moderately acid; clear smooth boundary.

Bt1—9 to 20 inches; yellowish brown (10YR 5/6) gravelly silty clay loam; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; common fine roots throughout; 2 percent patchy distinct yellowish brown (10YR 5/4) clay films on all faces of peds; 20 percent fragments of siltstone and chert; strongly acid; gradual smooth boundary.

Bt2—20 to 42 inches; strong brown (7.5YR 5/6) gravelly silty clay loam; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; 5 percent

discontinuous distinct brown (7.5YR 5/4) clay films on all faces of peds; 25 percent fragments of siltstone and chert; very strongly acid; gradual smooth boundary.
Cr—42 to 51 inches; weathered siltstone.

Range in Characteristics

Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 or 3
Texture—gravelly silt loam
Rock fragment content—0 to 25 percent
Reaction—pH 4.5 to 6.0
Organic matter content—1.0 to 2.0 percent

BA horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam or silty clay loam
Rock fragment content—0 to 25 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay loam or silt loam
Rock fragment content—0 to 35 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Frederick Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow or very slow
Landform position: Summits and hillsides
Parent material: Clayey residuum from limestone
Slope range: 2 to 40 percent
Taxonomic classification: Fine, mixed, semiactive, mesic Typic Paleudults

Typical Pedon

Frederick silt loam, 6 to 12 percent slopes, eroded; about 4 miles south of Columbia, about 6,000 feet east of Gadberry, 300 feet east of Glen Bennett Road and 200 feet north of Henry Garnett Road, in a hayfield; USGS Columbia, Kentucky topographic quadrangle; lat. 37 degrees 2 minutes 26.00 seconds N. and long. 85 degrees 17 minutes 32.00 seconds W.; UTM Zone 16, 651873 meters easting, 4100730 meters northing; NAD83:

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; common fine roots throughout; slightly alkaline; abrupt smooth boundary.

Bt1—9 to 18 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots throughout; 5 percent patchy distinct brown (7.5YR 5/4) clay films on all faces of peds; slightly alkaline; clear smooth boundary.

Bt2—18 to 36 inches; yellowish red (5YR 5/6) silty clay; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; common fine roots throughout; 10 percent discontinuous distinct reddish brown (5YR 5/4) clay films on all faces of peds; 5 percent chert fragments; moderately acid; gradual smooth boundary.

Bt3—36 to 60 inches; variegated 98 percent yellowish red (5YR 5/6) and 2 percent pale brown (10YR 6/3) clay; moderate medium angular blocky structure; very firm, moderately sticky, moderately plastic; 20 percent discontinuous distinct reddish brown (5YR 5/4) clay films on all faces of peds; 5 percent chert fragments; moderately acid; gradual smooth boundary.

Bt4—60 to 80 inches; variegated 95 percent yellowish red (5YR 5/6), 3 percent pale brown (10YR 6/3), and 2 percent reddish yellow (7.5YR 7/8) clay; moderate medium angular blocky structure; very firm, moderately sticky, moderately plastic; 25 percent continuous distinct reddish brown (5YR 5/4) clay films on all faces of peds; 5 percent chert fragments; strongly acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 8
Texture—silt loam
Rock fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—1.0 to 2.0 percent

Bt horizon:
Hue—7.5YR in the upper part of horizon; 2.5YR or 5YR in the lower part
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—clay, silty clay, or silty clay loam
Rock fragment content—0 to 35 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Garmon Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Landform position: Steep hillsides
Parent material: Fine-loamy residuum from siltstone and shale
Slope range: 20 to 70 percent
Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Dystric Eutrudepts

Typical Pedon

Garmon channery silt loam, 20 to 70 percent slopes; about 9 miles northeast of Columbia, about 1 mile north of Purdy on the east side of Kentucky Highway 551, about 125 feet east of Kentucky Highway 551, in woods; USGS Knifley, Kentucky topographic quadrangle; lat. 37 degrees 9 minutes 56.00 seconds N. and long. 85 degrees 10 minutes 47.00 seconds W.; UTM Zone 16, 661616 meters easting, 4114784 meters northing; NAD83:

A—0 to 4 inches; brown (10YR 4/3) channery silt loam; weak fine granular structure; friable; many fine and common medium roots throughout; 15 percent siltstone channers; strongly acid; abrupt wavy boundary.

Bw1—4 to 17 inches; yellowish brown (10YR 5/4) channery silt loam; moderate medium subangular blocky structure; friable; common fine and common medium roots throughout; 25 percent siltstone channers; strongly acid; clear wavy boundary.

Bw2—17 to 25 inches; yellowish brown (10YR 5/6) channery silt loam; weak medium subangular blocky structure; firm; common medium roots throughout; 30 percent siltstone channers; moderately acid; abrupt wavy boundary.

R—25 inches; siltstone bedrock.

Range in Characteristics

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Diagnostic feature(s): Ochric epipedon, lithic contact, and cambic horizon
Surface fragments: None
Seasonal high water table: None

A horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Rock fragment content—5 to 30 percent
Reaction—pH 4.5 to 7.3
Organic matter content—0.5 to 3.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam or silt loam
Rock fragment content—5 to 35 percent
Reaction—pH 5.1 to 7.3
Organic matter content—0.0 to 0.5 percent

Gilpin Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Landform position: Summits and side slopes
Parent material: Fine-loamy residuum from sandstone and siltstone
Slope range: 2 to 20 percent
Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludults

Typical Pedon

Gilpin channery silt loam, 6 to 12 percent slopes; about 4.5 miles east of Columbia, 2.0 miles south of Kentucky Highway 80, about 2,800 feet south of White Oak Church Road, 200 feet west of Edwin Bryant Road, in a pasture; USGS Montpelier, Kentucky topographic quadrangle; lat. 37 degrees 2 minutes 52.00 seconds N. and long. 85 degrees 11 minutes 59.00 seconds W.; UTM Zone 16, 660099 meters easting, 4101696 meters northing; NAD83:

Ap—0 to 8 inches; brown (10YR 4/3) channery silt loam; weak fine granular structure; friable; many very fine roots throughout; 15 percent siltstone channers; slightly acid; abrupt smooth boundary.

Bt1—8 to 15 inches; yellowish brown (10YR 5/6) channery silt loam; moderate medium subangular blocky structure; friable, non-sticky, non-plastic; many very fine roots throughout; 2 percent patchy distinct yellowish brown (10YR 5/4) clay films on vertical faces of peds; 15 percent siltstone channers; strongly acid; gradual smooth boundary.

Bt2—15 to 24 inches; yellowish brown (10YR 5/6) channery silty clay loam; moderate medium subangular blocky structure; friable, non-sticky, non-plastic; 4 percent patchy distinct yellowish brown (10YR 5/4) clay films on vertical faces of peds; 20 percent siltstone channers; very strongly acid; clear smooth boundary.

Cr—24 to 28 inches; brownish yellow (10YR 6/6) weathered siltstone bedrock; clear smooth boundary.

R—28 inches; siltstone bedrock.

Range in Characteristics

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock and 24 to 40 inches to lithic bedrock
Diagnostic feature(s): Ochric epipedon, lithic contact, paralithic contact, and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Rock fragment content—15 to 30 percent
Reaction—pH 4.5 to 6.6
Organic matter content—0.5 to 2.0 percent

Bt horizon:
Hue—7.5YR to 2.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silt loam, loam, or silty clay loam
Rock fragment content—15 to 35 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent

Johnsburg Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate above the fragipan; slow or very slow in the fragipan

Landform position: Broad upland ridges
Parent material: Silty deposits over residuum from siltstone, sandstone, or shale
Slope range: 0 to 2 percent
Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Fragiudults

Typical Pedon

Johnsburg silt loam; about 11 miles east of Columbia and 3.75 miles northwest of Russell Springs, 275 feet south-southwest of the intersection of Kentucky Highway 1729 and Free Union Road, 75 feet west of Free Union Road, on Camel Ridge, in a hayfield; USGS Russell Springs, Kentucky topographic quadrangle; lat. 37 degrees 6 minutes 22.00 seconds N. and long. 85 degrees 7 minutes 25.00 seconds W.; UTM Zone 16, 666736 meters easting, 4108288 meters northing; NAD83:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; very friable; many fine roots throughout; strongly acid; abrupt smooth boundary.

BE—8 to 13 inches; light yellowish brown (2.5Y 6/4) silt loam; weak medium subangular blocky structure; friable; many fine roots throughout; 2 percent fine distinct light brownish gray (10YR 6/2) iron depletions in matrix; very strongly acid; abrupt smooth boundary.

Bt—13 to 20 inches; pale brown (10YR 6/3) silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots throughout; 2 percent discontinuous distinct light brownish gray (10YR 6/2) clay films on surfaces along root channels and on all faces of peds; 10 percent fine prominent irregular olive yellow (2.5Y 6/8) masses of oxidized iron with clear boundaries in matrix; 5 percent discontinuous distinct light gray (2.5Y 7/2) iron depletions on faces of peds and in pores; strongly acid; clear smooth boundary.

Btg—20 to 34 inches; light brownish gray (2.5Y 6/2) silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; 5 percent patchy distinct gray (2.5Y 6/1) clay films on all faces of peds; 1 percent fine distinct spherical black (10YR 2/1) iron-manganese concretions with sharp boundaries in matrix and 5 percent fine distinct irregular brownish yellow (10YR 6/8) masses of oxidized iron with clear boundaries in matrix; very strongly acid: clear smooth boundary.

Btx—34 to 55 inches; yellowish brown (10YR 5/6) silt loam; moderate very coarse prismatic structure parting to moderate medium subangular blocky; very firm, slightly sticky, slightly plastic; 10 percent discontinuous distinct gray (2.5Y 6/1) clay films on vertical faces of prisms; 20 percent medium and coarse distinct light brownish gray (10YR 6/2) silt coatings on vertical faces of prisms; 20 percent medium distinct irregular olive yellow (2.5Y 6/8) masses of oxidized iron with diffuse boundaries in matrix; brittle in 80 percent of the mass; very strongly acid, pH 4.5; gradual wavy boundary.

2Bt—55 to 72 inches; 60 percent yellowish brown (10YR 5/6) and 40 percent strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky structure; very firm, moderately sticky, moderately plastic; 15 percent discontinuous distinct yellowish brown (10YR 5/4) clay films on vertical faces of peds; 10 percent medium distinct light brownish gray (10YR 6/2) iron depletions between peds; very strongly acid, pH 4.5; gradual wavy boundary.

2Cr—72 to 78 inches; weathered siltstone bedrock.

Range in Characteristics

Depth to restrictive feature: 22 to 38 inches to a fragipan
Diagnostic feature(s): Fragipan, redoximorphic concentrations and depletions, ochric epipedon, argillic horizon, and episaturation
Surface fragments: None

Seasonal high water table (months, type): December to May; perched
Depth to top of water table: 12 to 18 inches

Ap horizon:
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—silt loam
Rock fragment content—none
Reaction—pH 4.5 to 6.5
Organic matter content—1.0 to 2.0 percent

BE horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 6
Texture—silt loam
Rock fragment content—none
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron depletions

Bt horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 6
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron concentrations and iron depletions

Btg horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—0 to 2
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—reduced matrix and few or common iron concentrations

Btx horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—1 to 8
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron concentrations, few or common iron-manganese concentrations, and few or common clay depletions

2Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—1 to 8

Texture—silt loam, silty clay loam, loam, or clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron concentrations, few or common iron-manganese concentrations, and few or common clay depletions

Lawrence Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate above the fragipan; slow or very slow in the fragipan
Landform position: Level stream terraces
Parent material: Alluvium
Slope range: 0 to 2 percent
Taxonomic classification: Fine-silty, mixed, semiactive, mesic Aquic Fragiudalfs

Typical Pedon

Lawrence silt loam; about 5 miles southeast of Columbia, 0.6 mile northeast of Joppa on the Harlan Brown Road, about 30 yards west of Russell Creek, in a pasture; USGS Montpelier, Kentucky topographic quadrangle; lat. 37 degrees 3 minutes 27.00 seconds N. and long. 85 degrees 14 minutes 5.00 seconds W.; UTM Zone 16, 656967 meters easting, 4102700 meters northing; NAD83:

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; friable; common fine roots throughout; slightly acid; abrupt smooth boundary.

BE—9 to 15 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; common fine roots throughout; strongly acid; clear smooth boundary.

Bt—15 to 24 inches; light yellowish brown (10YR 6/4) silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots throughout; 10 percent patchy faint pale brown (10YR 6/3) clay films on all faces of peds; 20 percent medium distinct light brownish gray (10YR 6/2) iron depletions; moderately acid; clear smooth boundary.

Btx1—24 to 35 inches; light yellowish brown (10YR 6/4) silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm, slightly sticky, slightly plastic; few very fine roots between peds; 25 percent discontinuous distinct light brownish gray (10YR 6/2) clay films on vertical faces of prisms; 10 percent fine distinct spherical brownish yellow (10YR 6/8) iron-manganese masses with sharp boundaries and 15 percent medium and coarse distinct irregular light brownish gray (10YR 6/2) clay depletions with clear boundaries; brittle in 80 percent of the mass; moderately acid; clear wavy boundary.

Btx2—35 to 47 inches; light yellowish brown (10YR 6/4) silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm, slightly sticky, slightly plastic; 20 percent patchy distinct light brownish gray (10YR 6/2) clay films on vertical faces of prisms; 20 percent fine distinct spherical iron-manganese masses with sharp boundaries and 30 percent medium and coarse distinct irregular light brownish gray (10YR 6/2) clay depletions; brittle in 80 percent of the mass; moderately acid; clear wavy boundary.

BC—47 to 72 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium subangular blocky structure; very firm, slightly sticky, slighty plastic; 30 percent medium distinct light brownish gray (10YR 6/2) iron depletions; brittle in 30 percent of the mass; strongly acid.

Range in Characteristics

Depth to restrictive feature: 18 to 30 inches to a fragipan
Diagnostic feature(s): Fragipan, ochric epipedon, argillic horizon, redoximorphic depletions, and episaturation
Surface fragments: None
Seasonal high water table (months, type): December to May; perched
Depth to top of water table: 12 to 18 inches

Ap horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.0 to 6.5
Organic matter content—1.0 to 4.0 percent

BE horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 to 4
Texture—silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.0 to 6.5
Organic matter content—0.0 to 0.5 percent

Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—3 to 6
Texture—silty clay loam or silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.0 to 6.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few to many iron depletions and few or common iron-manganese concentrations

Btx horizon:
Hue—5YR to 5Y
Value—4 to 6
Chroma—1 to 8
Texture—silty clay or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.0 to 7.0
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron-manganese concentrations and common iron or clay depletions

BC horizon:
Hue—5YR to 5Y
Value—4 to 6
Chroma—1 to 8
Texture—silty clay or silty clay loam
Rock fragment content—0 to 10 percent

Reaction—pH 5.0 to 7.0
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron and clay depletions and few or common iron-manganese concentrations

Lenberg Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Landform position: Footslopes
Parent material: Clayey residuum from shale and siltstone
Slope range: 12 to 40 percent
Taxonomic classification: Fine, mixed, semiactive, mesic Ultic Hapludalfs

Typical Pedon

Lenberg silt loam in an area of Carpenter-Lenberg complex, 12 to 40 percent slopes; about 4 miles west of Dunnville on the Dunnville Road, about 150 feet south of the Dunnville Road near a power line, in woods; USGS Dunnville, Kentucky topographic quadrangle; lat. 37 degrees 11 minutes 30.00 seconds N. and long. 85 degrees 4 minutes 43.00 seconds W.; UTM Zone 16, 670532 meters easting, 4117863 meters northing; NAD83:

Oi—0 to 1 inch; slightly decomposed plant material; very abrupt wavy boundary.
A—1 to 3 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; 1 percent siltstone channers; moderately acid; abrupt smooth boundary.
BA—3 to 6 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; many fine roots throughout; very strongly acid; abrupt smooth boundary.
Bt1—6 to 12 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; common fine roots throughout; 10 percent continuous distinct brown (10YR 5/3) clay films on all faces of peds; very strongly acid; clear smooth boundary.
Bt2—12 to 22 inches; yellowish brown (10YR 5/4) silty clay; 5 percent fine distinct irregular strong brown (7.5YR 5/6) and 5 percent medium distinct irregular light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; common medium roots throughout; 5 percent shale channers; very strongly acid; clear smooth boundary.
C—22 to 30 inches; light yellowish brown (2.5Y 6/4) channery silty clay; 5 percent medium distinct irregular light brownish gray (10YR 6/2) and 10 percent fine prominent irregular strong brown (7.5YR 5/6) mottles; massive; firm, very sticky, very plastic; 20 percent shale channers; very strongly acid; gradual wavy boundary.
Cr—30 to 41 inches; light gray (2.5Y 7/2) and brown (10YR 5/3) weakly cemented shale bedrock.

Range in Characteristics

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Diagnostic feature(s): Ochric epipedon, argillic horizon, and paralithic contact
Seasonal high water table: None

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3

Texture—silt loam
Rock fragment content—0 to 14 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 3.0 percent

BA horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 6
Texture—silt loam or silty clay loam
Rock fragment content—0 to 14 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent

Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 8
Texture of the fine-earth fraction—silty clay or clay
Rock fragment content—0 to 30 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent

C horizon:
Hue—5YR to 5Y
Value—4 or 5
Chroma—3 to 8
Texture of the fine-earth fraction—clay or silty clay
Rock fragment content—5 to 35 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent

Lindside Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow
Landform position: Flood plains
Parent material: Alluvium
Slope range: 0 to 2 percent
Taxonomic classification: Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts

Typical Pedon

Lindside silt loam, occasionally flooded; about 12.6 miles southwest of Columbia, about 1.1 miles west of Leatherwood Church, 150 feet south of Kentucky Highway 80, about 100 feet west of a farm road, in a crop field; USGS Gradyville, Kentucky topographic quadrangle; lat. 37 degrees 0 minutes 37.00 seconds N. and long. 85 degrees 29 minutes 32.00 seconds W.; UTM Zone 16, 634147 meters easting, 4097066 meters northing; NAD83:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine roots throughout; slightly acid; clear smooth boundary.
Bw1—8 to 21 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots throughout; moderately acid; clear smooth boundary.
Bw2—21 to 36 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular

blocky structure; friable, slightly sticky, slightly plastic; 2 percent fine prominent irregular strong brown (7.5YR 5/6) iron-manganese masses with clear boundaries in matrix, 5 percent medium distinct irregular light brownish gray (10YR 6/2) iron depletions with clear boundaries in matrix, and 10 percent fine distinct irregular light gray (10YR 7/2) iron depletions with clear boundaries in matrix; moderately acid; clear smooth boundary.

C—36 to 80 inches; light yellowish brown (10YR 6/4) silt loam; massive; firm, slightly sticky, slightly plastic; 5 percent medium distinct irregular light brownish gray (10YR 6/2) iron depletions with clear boundaries in matrix and 10 percent fine distinct irregular light gray (10YR 7/2) iron depletions with clear boundaries in matrix; moderately acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Ochric epipedon, redoximorphic depletions, and cambic horizon
Surface fragments: None
Seasonal high water table (months, type): December to April; apparent
Depth to top of water table: 18 to 24 inches

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture—silt loam
Rock fragment content—0 to 3 percent
Reaction—pH 5.1 to 7.8
Organic matter content—1.0 to 3.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.1 to 7.8
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron depletions and few or common iron-manganese concentrations

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.1 to 7.8
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron depletions and few or common iron-manganese concentrations

Lonewood Series

Depth class: Deep or very deep
Drainage class: Well drained
Permeability: Moderate

Landform position: Summits and shoulders
Parent material: Loamy residuum from sandstone and shale
Slope range: 2 to 12 percent
Taxonomic classification: Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Lonewood loam, 2 to 6 percent slopes; about 9.5 miles east of Columbia on Kentucky Highway 80, about 1,000 feet west of the Adair-Russell County line, about 150 feet north of Highway 80, in a tobacco patch; USGS Montpelier, Kentucky topographic quadrangle; lat. 37 degrees 4 minutes 22.00 seconds N. and long. 85 degrees 8 minutes 12.00 seconds W.; UTM Zone 16, 665638 meters easting, 4104575 meters northing; NAD83:

Ap—0 to 7 inches; dark brown (10YR 3/3) loam; weak fine granular structure; very friable; many fine roots throughout; moderately acid; abrupt smooth boundary.
BA—7 to 15 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; very friable; common fine roots throughout; strongly acid; clear smooth boundary.
Bt1—15 to 28 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots throughout; 2 percent discontinuous distinct yellowish brown (10YR 5/4) clay films on surfaces along pores and 8 percent patchy distinct yellowish brown (10YR 5/4) clay films on all faces of peds; strongly acid; clear smooth boundary.
Bt2—28 to 48 inches; 95 percent yellowish brown (10YR 5/6) and 5 percent pale brown (10YR 6/3) clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; 2 percent discontinuous distinct yellowish brown (10YR 5/4) clay films on surfaces along pores and 8 percent patchy distinct yellowish brown (10YR 5/4) clay films on all faces of peds; very strongly acid; clear smooth boundary.
Bt3—48 to 59 inches; strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; 8 percent patchy distinct brown (7.5YR 5/4) clay films on all faces of peds; very strongly acid; clear smooth boundary.
Cr—59 to 66 inches; weathered sandstone bedrock.
R—66 inches; sandstone bedrock.

Range in Characteristics

Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 5.5
Organic matter content—1.0 to 3.0 percent

BA horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 4

Texture—loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—loam, silty clay loam, or clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent

Melvin Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderately slow
Landform position: Flood plains
Parent material: Alluvium
Slope range: 0 to 2 percent
Taxonomic classification: Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

Typical Pedon

Melvin silt loam, occasionally flooded; about 16 miles east of Columbia near Pellyton, about 0.9 mile south of Kentucky Highway 206, about 150 feet west of a farm road, in a crop field; USGS Dunnville, Kentucky topographic quadrangle; lat. 37 degrees 11 minutes 55.00 seconds N. and long. 85 degrees 4 minutes 35.00 seconds W.; UTM Zone 16, 670713 meters easting, 4118643 meters northing; NAD83:

Ap—0 to 8 inches; grayish brown (2.5Y 5/2) silt loam; weak fine granular structure; very friable; common fine roots throughout; 1 percent fine distinct irregular light gray (N 7/0) iron depletions throughout and 10 percent fine distinct threadlike masses of oxidized iron on surfaces along root channels; strongly acid; abrupt smooth boundary.

Bg—8 to 22 inches; light brownish gray (2.5Y 6/2) silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few very fine roots throughout; 1 percent fine distinct spherical black (N 2.5/0) iron-manganese masses throughout and 10 percent fine distinct irregular yellowish brown (10YR 5/8) iron-manganese masses in matrix; strongly acid; clear smooth boundary.

Cg1—22 to 40 inches; light gray (N 7/0) silt loam; massive; friable, slightly sticky, slightly plastic; 1 percent fine distinct spherical black (N 2.5/0 and 2.5Y 2.5/1) iron-manganese masses throughout, 5 percent medium distinct irregular olive yellow (2.5Y 6/6) iron-manganese masses throughout, and 10 percent medium distinct irregular brownish yellow (10YR 6/8) iron-manganese masses throughout; moderately acid; gradual smooth boundary.

Cg2—40 to 80 inches; gray (N 5/0) silt loam; massive; friable, slightly sticky, slightly plastic; 5 percent medium distinct irregular light olive brown (2.5Y 5/4) iron-manganese masses throughout and 10 percent medium distinct irregular yellowish brown (10YR 5/6) iron-manganese masses throughout; moderately acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches

Diagnostic feature(s): Ochric epipedon, aquic conditions, and cambic horizon
Surface fragments: None
Seasonal high water table (months, type): December to May; apparent
Depth to top of water table: 0 to 8 inches

Ap horizon:
Hue—10YR to 5Y
Value—3 to 7
Chroma—1 to 4
Texture—silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.5 to 3.0 percent
Redoximorphic features—few or common iron concentrations and few or common iron depletions

Bg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 7
Chroma—2 or less
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—reduced matrix, few or common iron concentrations, and few or common iron-manganese concentrations

Cg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 7
Chroma—2 or less
Texture—silt loam, silty clay loam, or loam
Rock fragment content—0 to 10 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—reduced matrix, few or common iron concentrations, and few or common iron-manganese concentrations

Needmore Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow or very slow
Landform position: Summits and hillsides
Parent material: Residuum from calcareous shale
Slope range: 2 to 20 percent
Taxonomic classification: Fine, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Needmore silt loam, 6 to 20 percent slopes, very rocky; about 3.75 miles west of the town square in Columbia, in between Kentucky Highway 80 and Kentucky Highway 61, about 0.5 mile southwest of Highway 61, about 0.5 mile north-northwest of Tommy Nobles Road, in an abandoned pasture; USGS Columbia, Kentucky topographic quadrangle; lat. 37 degrees 5 minutes 33.00 seconds N. and long. 85 degrees 22 minutes 8.00 seconds W.; UTM Zone 16, 644952 meters easting, 4106391 meters northing; NAD83:

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; common fine roots throughout; moderately acid; abrupt smooth boundary.
Bt1—5 to 10 inches; strong brown (7.5YR 5/6) silty clay; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; common fine roots throughout; 5 percent channers of shale; strongly acid; clear smooth boundary.
Bt2—10 to 24 inches; yellowish red (5YR 5/6) silty clay; moderate medium angular blocky structure; firm, moderately sticky, moderately plastic; 8 percent channers of shale; slightly acid; clear smooth boundary.
Cr—24 to 34 inches; variegated yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) weakly cemented calcareous shale bedrock; moderately alkaline.

Range in Characteristics

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Diagnostic feature(s): Ochric epipedon, paralithic contact, and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—7.5YR or 10YR
Value—2 to 6
Chroma—2 to 6
Texture—silt loam or silty clay loam
Rock fragment content—0 to 10 percent
Reaction—pH 5.5 to 6.5
Organic matter content—1.0 to 2.0 percent

Bt horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—silty clay or clay
Rock fragment content—0 to 30 percent
Reaction—pH 5.5 to 6.0
Organic matter content—0.0 to 0.5 percent

Newark Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Landform position: Flood plains
Parent material: Alluvium
Slope range: 0 to 2 percent
Taxonomic classification: Fine-silty, mixed, active, nonacid, mesic Fluventic Endoaquepts

Typical Pedon

Newark silt loam, occasionally flooded; about 0.5 mile south-southwest of Knifley, 1,200 feet west of Kentucky Highway 76 and 2,000 feet south of Kentucky Highway 551, on Kentucky Fish and Wildlife land, in a crop field; USGS Knifley, Kentucky topographic quadrangle; lat. 37 degrees 14 minutes 1.00 seconds N. and long. 85

degrees 11 minutes 32.00 seconds W.; UTM Zone 16, 660359 meters easting, 4122322 meters northing; NAD83:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; common fine roots throughout; moderately acid; abrupt smooth boundary.

Bw—6 to 18 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable, non-sticky, non-plastic; common fine roots throughout; 1 percent fine distinct threadlike strong brown (7.5YR 5/8) iron-manganese masses on surfaces along root channels and 5 percent medium distinct irregular light gray (10YR 7/2) iron depletions with clear boundaries throughout; moderately acid; clear smooth boundary.

Bg—18 to 30 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable, slighty sticky, slightly plastic; 1 percent fine prominent spherical (10YR 2.5/1) iron-manganese nodules with sharp boundaries in matrix and 5 percent medium distinct irregular yellowish brown (10YR 5/8) iron-manganese masses with clear boundaries throughout; moderately acid; gradual smooth boundary.

Cg1—30 to 42 inches; light brownish gray (2.5Y 6/2) silty clay loam; massive; friable, slightly sticky, slightly plastic; 1 percent fine prominent spherical (10YR 2.5/1) iron-manganese nodules with sharp boundaries in matrix, 5 percent medium distinct irregular yellowish brown (10YR 5/8) iron-manganese masses with clear boundaries throughout, and 5 percent medium faint irregular gray (10YR 6/1) iron depletions with clear boundaries in matrix; moderately acid; gradual smooth boundary.

Cg2—42 to 80 inches; light brownish gray (10YR 6/2) silt loam; massive; friable, slightly sticky, slightly plastic; 1 percent fine prominent spherical (10YR 2.5/1) iron-manganese nodules with sharp boundaries in matrix; moderately acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Redoximorphic concentrations, ochric epipedon, redoximorphic depletions with chroma of 2 or less, and cambic horizon
Surface fragments: None
Seasonal high water table (months, type): December to May; apparent
Depth to top of water table: 12 to 18 inches

Ap horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.6 to 7.8
Organic matter content—1.0 to 4.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.2 to 1.0 percent
Redoximorphic features—few to many iron-manganese concentrations and few to many iron depletions

Bg horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.8 percent
Redoximorphic features—reduced matrix, few to many iron-manganese concentrations, and few to many iron depletions

Cg horizon:
Hue—7.5YR to 2.5Y or neutral
Value—4 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.8 percent
Redoximorphic features—reduced matrix, few to many iron-manganese concentrations, and few to many iron depletions

Nolin Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landform position: Flood plains
Parent material: Alluvium
Slope range: 0 to 2 percent
Taxonomic classification: Fine-silty, mixed, active, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Nolin silt loam, occasionally flooded; about 2.1 miles east of Neatsville (Kentucky Highway 206 and Green River), 100 feet north of a Kentucky Fish and Wildlife road, in a crop field; USGS Knifley, Kentucky topographic quadrangle; lat. 37 degrees 11 minutes 46.00 seconds N. and long. 85 degrees 9 minutes 50.00 seconds W.; UTM Zone 16, 662949 meters easting, 4118212 meters northing; NAD83:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; common fine roots throughout; slightly acid; abrupt smooth boundary.
Bw1—8 to 24 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots throughout; slightly acid; clear smooth boundary.
Bw2—24 to 42 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; slightly acid; clear smooth boundary.
C—42 to 80 inches; brown (10YR 4/3) silt loam; massive; firm, slightly sticky, slightly plastic; slightly acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Ochric epipedon and cambic horizon
Surface fragments: None
Seasonal high water table: More than 6 feet

Ap horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Rock fragment content—0 to 3 percent
Reaction—pH 5.6 to 7.8
Organic matter content—2.0 to 4.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Rock fragment content—0 to 3 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.2 to 1.0 percent

C horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—2 to 6
Texture—loam, silt loam, or silty clay loam
Rock fragment content—0 to 20 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.8 percent

Otwood Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan; slow or very slow in the fragipan
Landform position: Stream terraces
Parent material: Alluvium
Slope range: 0 to 12 percent
Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon

Otwood silt loam, 2 to 6 percent slopes; about 3 miles west of the Columbia town square, 1,800 feet north of Kentucky Highway 61, about 150 feet east of P.D. Pyles Road, in a hayfield; USGS Columbia, Kentucky topographic quadrangle; lat. 37 degrees 6 minutes 22.00 seconds N. and long. 85 degrees 21 minutes 46.00 seconds W.; UTM Zone 16, 645474 meters easting, 4107912 meters northing; NAD83:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots throughout; slightly acid; abrupt smooth boundary.

BA—8 to 13 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; very friable; many fine roots throughout; slightly acid; clear smooth boundary.

Bt—13 to 28 inches; light yellowish brown (10YR 6/4) silt loam; moderate medium subangular blocky structure; friable, slighty sticky, slightly plastic; 5 percent patchy distinct yellowish brown (10YR 5/4) clay films on all faces of peds; very strongly acid; clear smooth boundary.

Btx1—28 to 43 inches; light yellowish brown (10YR 6/4) silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm, slightly sticky, slightly plastic; 5 percent patchy distinct yellowish brown (10YR 5/4) clay films on vertical faces of peds; 10 percent medium distinct irregular iron-manganese masses and 30 percent medium distinct irregular light gray (10YR 7/2) iron depletions on vertical faces of peds; brittle in 70 percent of the mass; very strongly acid; gradual smooth boundary.

Btx2—43 to 69 inches; light brownish gray (10YR 6/2) silt loam; weak very coarse prismatic structure parting to moderate medium subangular blocky; very firm, slightly sticky, slightly plastic; 20 percent medium distinct irregular iron-manganese masses and 30 percent medium distinct irregular light gray (10YR 7/2) iron depletions on vertical faces of peds; brittle in 70 percent of the mass; very strongly acid; gradual smooth boundary.

2Bt—69 to 80 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; firm, slightly sticky, slightly plastic; 5 percent discontinuous distinct yellowish brown (10YR 5/4) clay films on vertical faces of peds; 30 percent medium distinct irregular iron-manganese masses between peds and 10 percent medium distinct irregular light gray (10YR 7/2) iron depletions between peds; very strongly acid.

Range in Characteristics

Depth to restrictive feature: 18 to 30 inches to a fragipan
Diagnostic feature(s): Fragipan, ochric epipedon, and argillic horizon
Surface fragments: None
Seasonal high water table (months, type): December to April; perched
Depth to top of water table: 16 to 24 inches

Ap horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 5.4
Organic matter content—0.5 to 2.0 percent

BA horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 5.4
Organic matter content—0.0 to 0.8 percent

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 5.4
Organic matter content—0.0 to 0.5 percent

Btx horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 8

Texture—silty clay loam or silt loam
Rock fragment content—0 to 10 percent
Reaction—pH 4.5 to 5.4
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—common or many iron-manganese concentrations and common or many iron depletions

2Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 8
Texture—silty clay loam or silt loam
Rock fragment content—0 to 10 percent
Reaction—pH 4.5 to 5.4
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—common or many iron-manganese concentrations and common or many iron depletions

Pricetown Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Landform position: Summits
Parent material: Fine-silty loess over clayey residuum of limestone
Slope range: 2 to 12 percent
Taxonomic classification: Fine-silty, siliceous, semiactive, mesic Typic Paleudults

Typical Pedon

Pricetown silt loam, 2 to 6 percent slopes; about 14 miles east-northeast of Columbia, about 1.5 miles south of Millerfield, 250 feet east of Millerfield Road, in a pasture; USGS Dunnville, Kentucky topographic quadrangle; lat. 37 degrees 7 minutes 40.00 seconds N. and long. 85 degrees 6 minutes 42.00 seconds W.; UTM Zone 16, 667740 meters easting, 4110728 meters northing; NAD83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots throughout; moderately acid; abrupt smooth boundary.

Bt1—7 to 14 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots throughout; 2 percent discontinuous faint clay films on surfaces along pores and 5 percent discontinuous faint clay films on all faces of peds; very strongly acid; clear smooth boundary.

Bt2—14 to 30 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; 10 percent discontinuous distinct yellowish brown (10YR 5/4) clay films on all faces of peds; very strongly acid; clear smooth boundary.

2Bt3—30 to 42 inches; 90 percent yellowish red (5YR 5/6), 5 percent pale brown (10YR 6/3), and 5 percent yellow (10YR 7/6) silty clay loam; moderate medium angular blocky structure; firm, moderately sticky, moderately plastic; 25 percent discontinuous distinct reddish brown (5YR 5/4) clay films on all faces of peds; 2 percent fine distinct spherical iron-manganese concretions in matrix; very strongly acid; clear smooth boundary.

2Bt4—42 to 80 inches; 85 percent yellowish red (5YR 4/6), 10 percent strong brown (7.5YR 5/6), and 5 percent pale brown (10YR 6/3) clay; moderate medium angular blocky structure; very firm, moderately sticky, moderately plastic; 25 percent continuous distinct reddish brown (5YR 5/4) clay films on all faces of peds; 2 percent fine distinct spherical black (10YR 2/1) iron-manganese concretions in matrix; 3 percent subrounded chert fragments; very strongly acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 5.4
Organic matter content—1.0 to 4.0 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 5.4
Organic matter content—0.0 to 0.5 percent

2Bt horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—6 to 8
Texture of the fine-earth fraction—silty clay, clay, or silty clay loam
Rock fragment content—0 to 35 percent
Reaction—pH 4.5 to 5.4
Organic matter content—0.0 to 0.5 percent

Riney Series

Depth class: Deep or very deep
Drainage class: Well drained
Permeability: Moderate
Landform position: Summits
Parent material: Residuum from sandstone
Slope range: 2 to 12 percent
Taxonomic classification: Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Riney loam, 6 to 12 percent slopes; about 4.75 miles northwest of Knifley, 300 feet south of Pike Ridge Road at the Adair County line, on the east side of a dirt road, in woods; USGS Campbellsville, Kentucky topographic quadrangle; lat. 37 degrees 15 minutes 36.00 seconds N. and long. 85 degrees 16 minutes 14.00 seconds W.; NAD83:

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; common fine roots throughout; strongly acid; abrupt smooth boundary.

Bt1—6 to 14 inches; yellowish red (5YR 5/6) clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and few medium roots throughout; 10 percent patchy distinct reddish brown (5YR 5/4) clay films on all faces of peds; strongly acid; clear smooth boundary.
Bt2—14 to 32 inches; red (2.5YR 5/6) clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few medium roots throughout; 25 percent discontinuous distinct reddish brown (2.5YR 5/4) clay films on all faces of peds; very strongly acid; clear smooth boundary.
Bt3—32 to 42 inches; red (2.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; 25 percent discontinuous distinct reddish brown (2.5YR 5/4) clay films on all faces of peds; 10 percent channers of sandstone; very strongly acid; clear smooth boundary.
C—42 to 50 inches; red (2.5YR 5/6) channery sandy loam; massive; firm, non-sticky, non-plastic; 20 percent channers of sandstone; very strongly acid; clear smooth boundary.
Cr—50 to 56 inches; weathered sandstone bedrock.

Range in Characteristics

Depth to restrictive feature: 40 to 65 inches to paralithic bedrock
Diagnostic feature(s): Ochric epipedon and argillic horizon
Surface fragments: None
Seasonal high water table: None

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—loam
Rock fragment content—0 to 10 percent
Reaction—pH 4.5 to 5.5
Organic matter content—1.0 to 3.0 percent

Bt horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—sandy clay loam, clay loam, or loam
Rock fragment content—0 to 20 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent

C horizon:
Hue—2.5YR to 10YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—loam, sandy clay loam, or sandy loam
Rock fragment content—0 to 40 percent
Reaction—pH 4.0 to 5.2
Organic matter content—0.0 to 0.2 percent

Robertsville Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow or very slow

Landform position: Level stream terraces
Parent material: Alluvium
Slope range: 0 to 2 percent
Taxonomic classification: Fine-silty, mixed, semiactive, mesic Typic Fragiaqualfs

Typical Pedon

Robertsville silt loam, rarely flooded; about 16 miles northeast of Columbia, about 5 miles northwest of Dunnville, 1,200 feet north of Kentucky Highway 206, about 150 feet east of K. Atwood Road, in woods; USGS Dunnville, Kentucky topographic quadrangle; lat. 37 degrees 12 minutes 36.00 seconds N. and long. 85 degrees 6 minutes 32.00 seconds W.; UTM Zone 16, 667807 meters easting, 4119837 meters northing; NAD83:

Ap—0 to 8 inches; dark gray (10YR 4/1) silt loam; weak fine granular structure; very friable; common fine roots throughout; 5 percent fine distinct threadlike gray (10YR 5/8) iron-manganese masses with sharp boundaries on surfaces along root channels; moderately acid; abrupt smooth boundary.

Btg—8 to 16 inches; gray (10YR 6/1) silt loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots throughout; 15 percent patchy faint clay films on all faces of peds; 1 percent medium distinct irregular yellowish brown (10YR 5/6) iron-manganese masses with clear boundaries infused into matrix along faces of peds and 10 percent medium faint irregular pale brown (10YR 6/3) iron depletions with clear boundaries in matrix; strongly acid; gradual smooth boundary.

Btgx—16 to 40 inches; gray (10YR 6/1) silt loam; weak very coarse prismatic structure parting to weak medium subangular blocky; firm, slightly sticky, slightly plastic; 10 percent continuous distinct light gray (10YR 7/2) silt coats on vertical faces of peds and 25 percent discontinuous distinct light brownish gray (10YR 6/2) clay films on vertical faces of peds; 1 percent medium faint irregular light brownish gray (2.5Y 6/2) iron depletions with clear boundaries in matrix and 10 percent medium distinct irregular yellowish brown (10YR 5/8) iron-manganese masses with clear boundaries infused into matrix along faces of peds; brittle in 70 percent of the mass; strongly acid; gradual smooth boundary.

B´tg—40 to 50 inches; gray (10YR 6/1) silty clay loam; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; 25 percent patchy faint clay films on all faces of peds; 15 percent medium distinct irregular yellowish brown (10YR 5/6) iron-manganese masses with clear boundaries in matrix; strongly acid; gradual smooth boundary.

Cg—50 to 80 inches; gray (2.5Y 6/1) silty clay loam; massive; firm, moderately sticky, moderately plastic; 15 percent medium distinct irregular yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) iron-manganese masses with clear boundaries in matrix; 3 percent subrounded chert fragments; strongly acid.

Range in Characteristics

Depth to restrictive feature: 15 to 30 inches to a fragipan
Diagnostic feature(s): Fragipan, ochric epipedon, aquic conditions, and argillic horizon
Surface fragments: None
Seasonal high water table (months, type): December to May; perched
Depth to top of water table: 0 to 8 inches

Ap horizon:
Hue—10YR or 2.5Y
Value—3 or 4
Chroma—1 or 2
Texture—silt loam

Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 6.5
Organic matter content—1.0 to 3.0 percent
Redoximorphic features—few or common iron-manganese concentrations

Btg horizon:
Hue—10YR to 5Y
Value—5 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.2 to 0.8 percent
Redoximorphic features—few or common iron-manganese concentrations and few or common iron depletions

Btxg horizon:
Hue—10YR to 5Y or neutral
Value—5 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron depletions and few or common iron-manganese concentrations

B´tg horizon:
Hue—10YR to 5Y
Value—5 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.2 to 0.8 percent
Redoximorphic features—few or common iron-manganese concentrations and few or common iron depletions

Cg horizon:
Hue—10YR to 5Y
Value—5 to 7
Chroma—1 or 2
Texture—silty clay loam or silt loam
Rock fragment content—0 to 5 percent
Reaction—pH 4.5 to 6.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron depletions and few or common iron-manganese concentrations

Rohan Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Landform position: Hillsides
Parent material: Residuum from black shale

Slope range: 20 to 60 percent
Taxonomic classification: Loamy-skeletal, mixed, semiactive, mesic Lithic Dystrudepts

Typical Pedon

Rohan channery silt loam, 20 to 60 percent slopes; about 1.75 miles southwest of Dunnville, 0.6 mile southeast of the Adair-Casey-Russell County line, about 1.0 mile south of Kentucky Highway 531 (Dunnville Road), 30 feet west of a forest road, in woods; USGS Dunnville, Kentucky topographic quadrangle; lat. 37 degrees 10 minutes 40.00 seconds N. and long. 85 degrees 3 minutes 3.00 seconds W.; UTM Zone 16, 673036 meters easting, 4116388 meters northing; NAD83:

A—0 to 4 inches; brown (10YR 4/3) channery silt loam; weak fine granular structure; very friable; many fine and many medium roots throughout; 15 percent channers of shale; strongly acid; abrupt wavy boundary.
Bw1—4 to 10 inches; dark yellowish brown (10YR 4/4) channery silt loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; 30 percent channers of shale; very strongly acid; abrupt wavy boundary.
Bw2—10 to 16 inches; dark yellowish brown (10YR 4/6) very channery silty clay loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; 50 percent channers of shale; very strongly acid; abrupt wavy boundary.
R—16 to 22 inches; greenish black (10Y 2/1) shale bedrock.

Range in Characteristics

Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Diagnostic feature(s): Ochric epipedon, lithic contact, and cambic horizon
Surface fragments: None
Seasonal high water table: None

A horizon:
Hue—7.5YR to 2.5Y
Value—2 to 5
Chroma—2 to 4
Texture—channery silt loam
Rock fragment content—5 to 75 percent
Reaction—pH 4.5 to 6.0
Organic matter content—0.5 to 3.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam
Rock fragment content—0 to 75 percent
Reaction—pH 5.0 to 5.8
Organic matter content—0.5 to 1.0 percent

Sano Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan; slow or very slow in the fragipan
Landform position: Undulating summits
Parent material: Loess over residuum from limestone or siltstone
Slope range: 1 to 4 percent
Taxonomic classification: Coarse-silty, siliceous, semiactive, mesic Glossic Fragiudults

Figure 10.—Profile of a Sano soil. The Sano soil has a dense fragipan layer that restricts root penetration and perches water for several months.

Typical Pedon

Sano silt loam, 1 to 4 percent slopes (fig. 10); about 12 miles northeast of Columbia, 1,200 feet south of Kentucky Highway 76, about 500 feet west of Millerfield Road, in a cultivated field; USGS Dunnville, Kentucky topographic quadrangle; lat. 32 degrees 8 minutes 40.35 seconds N. and long. 85 degrees 6 minutes 23.50 seconds W.; UTM Zone 16, 668163 meters easting, 4112584 meters northing; NAD83:

Ap—0 to 10 inches; brown (10YR 5/3) silt loam; weak fine granular structure; very friable; common fine roots throughout; extremely acid; abrupt smooth boundary.

Bw—10 to 21 inches; light yellowish brown (10YR 6/4) silt loam; weak medium subangular blocky structure; friable, non-sticky, non-plastic; few fine and few medium roots throughout; common fine tubular pores; 3 percent medium black (10YR 2/1) iron-manganese concretions; very strongly acid; clear wavy boundary.

Bx/E—21 to 28 inches; 60 percent olive yellow (2.5Y 6/6) and 40 percent gray (2.5Y 6/1) silt loam; weak medium subangular blocky structure and weak fine subangular blocky structure; firm, non-sticky, non-plastic; few fine roots throughout; few fine tubular pores; prominent light gray (2.5Y 7/1) silt coats on vertical faces of peds; 5 percent medium irregular (7.5YR 4/8) iron-manganese nodules in matrix, 5 percent fine spherical black (10YR 2/1) iron-manganese concretions in matrix, and 5 percent fine irregular (7.5YR 4/8) iron-manganese masses in matrix; brittle in 40 percent of the mass; 1 percent channers of siltstone; very strongly acid; clear wavy boundary.

Btx1—28 to 47 inches; 40 percent yellowish brown (10YR 5/6), 40 percent light gray (10YR 7/2), and 20 percent strong brown (7.5YR 5/6) silt loam; weak very coarse prismatic structure parting to weak medium subangular blocky; very firm, non-sticky, non-plastic; few very fine roots between prisms; many fine discontinuous pores; 8 percent distinct gray (10YR 6/1) clay films on vertical faces of prisms and 25 percent distinct light gray (2.5Y 7/2) silt coats on vertical faces of prisms; 1 percent fine distinct irregular red (2.5YR 5/8) iron-manganese nodules in matrix, 1 percent fine distinct spherical black (10YR 2/1) iron-manganese concretions in matrix, 1 percent medium distinct spherical black (10YR 2/1) iron-manganese concretions in matrix, and 10 percent medium distinct irregular red (7.5R 5/6) iron-manganese masses in matrix; brittle in 80 percent of the mass; 2 percent channers of siltstone and sandstone; very strongly acid; gradual irregular boundary.

Btx2—47 to 81 inches; brownish yellow (10YR 6/8) silt loam; weak very coarse prismatic structure parting to weak medium subangular blocky; very firm, non-sticky, non-plastic; common fine discontinuous pores; 25 percent distinct gray (10YR 6/1) clay films on vertical faces of prisms and 25 percent prominent light gray (2.5Y 7/2) silt coats on vertical faces of prisms; 1 percent fine distinct irregular red (2.5YR 5/8) iron-manganese masses in matrix, 5 percent fine distinct spherical greenish black (10Y 2/1) iron-manganese concretions in matrix, and 5 percent medium distinct spherical black (10YR 2/1) iron-manganese concretions in matrix; brittle in 80 percent of the mass; 2 percent channers of siltstone and sandstone; extremely acid.

Range in Characteristics

Depth to restrictive feature: 18 to 30 inches to a fragipan
Diagnostic feature(s): Glossic horizon, fragipan, ochric epipedon, cambic horizon, and argillic horizon
Surface fragments: None
Seasonal high water table (months, type): December to May; perched
Depth to top of water table: 18 to 30 inches

Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 4
Texture—silt loam
Reaction—pH 4.0 to 5.5
Organic matter content—1.0 to 2.0 percent

Bw horizon:
Hue—10YR or 2.5Y
Value—5 or 6

Chroma—3 to 6
Texture—silt loam
Rock fragment content—0 to 3 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent

Bx/E horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 6
Texture—silt loam
Rock fragment content—0 to 3 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.2 percent
Redoximorphic features—few or common iron-manganese concentrations and few or common iron depletions

Btx horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—4 to 6
Texture—silt loam or silty clay loam
Rock fragment content—0 to 6 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.2 percent
Redoximorphic features—few or common iron-manganese concentrations and few or common iron depletions

Skidmore Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Parent material: Gravelly alluvium
Slope range: 0 to 2 percent
Taxonomic classification: Loamy-skeletal, mixed, semiactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Skidmore gravelly loam, frequently flooded; about 13 miles south of Columbia, 1.75 miles east-southeast of Breeding, 1,600 feet north of Greenbriar Ridge Road, on the north side of Casey Fork, 3,400 feet east of a barn, in a pasture; USGS Breeding, Kentucky topographic quadrangle; lat. 36 degrees 56 minutes 52.00 seconds N. and long. 85 degrees 23 minutes 13.00 seconds W.; UTM Zone 16, 643629 meters easting, 409291 meters northing; NAD83:

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) gravelly loam; weak fine granular structure; very friable; many very fine roots throughout; 25 percent rounded gravel of chert, sandstone, and siltstone; moderately acid; clear smooth boundary.
Bw1—6 to 14 inches; dark yellowish brown (10YR 4/6) very gravelly sandy loam; weak fine granular structure; very friable, non-sticky, non-plastic; many fine roots throughout; 40 percent rounded gravel of chert, sandstone, and siltstone; moderately acid; clear smooth boundary.
Bw2—14 to 28 inches; yellowish brown (10YR 5/6) very gravelly sandy loam; weak fine subangular blocky structure; friable, non-sticky, non-plastic; 50 percent

rounded gravel and 5 percent cobbles of chert, sandstone, and siltstone; moderately acid; gradual smooth boundary.

C—28 to 81 inches; yellowish brown (10YR 5/6) extremely gravelly sandy loam; single grain; loose; 60 percent rounded gravel and 5 percent cobbles of chert, sandstone, and siltstone; moderately acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Ochric epipedon and cambic horizon
Surface fragments: None
Seasonal high water table (months, type): December to April; apparent
Depth to top of water table: 48 to 60 inches

Ap horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—gravelly loam
Rock fragment content—0 to 50 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.5 to 2.0 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture of the fine-earth fraction—fine sandy loam, sandy loam, or loam
Rock fragment content—35 to 90 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.5 percent

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture of the fine-earth fraction—fine sandy loam, sandy loam, or loam
Rock fragment content—35 to 90 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.5 percent

Tarklin Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan; slow or very slow in the fragipan
Landform position: Stream terraces
Parent material: Alluvium
Slope range: 2 to 12 percent
Taxonomic classification: Fine-loamy, siliceous, semiactive, mesic Typic Fragiudults

Typical Pedon

Tarklin gravelly silt loam, 2 to 6 percent slopes; about 2.75 miles west of Dunnville, 0.5 mile south of Dunville Road; USGS Dunnville, Kentucky topographic quadrangle; lat. 37 degrees 11 minutes 25.00 seconds N. and long. 85 degrees 3 minutes 18.00 seconds W.; UTM Zone 16, 672630 meters easting, 4117739 meters northing; NAD83:

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; weak fine granular structure; very friable; common fine roots throughout; 15 percent fragments of chert; moderately acid; clear smooth boundary.

BA—7 to 12 inches; yellowish brown (10YR 5/4) gravelly silt loam; weak medium subangular blocky structure; very friable; common fine roots throughout; 15 percent fragments of chert; strongly acid; clear smooth boundary.

Bt—12 to 20 inches; light yellowish brown (10YR 6/4) gravelly silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; 10 percent patchy faint clay films on all faces of peds; 1 percent fine distinct spherical black (10YR 2/1) iron-manganese concretions in matrix; 25 percent fragments of chert; very strongly acid; gradual smooth boundary.

Btx1—20 to 38 inches; light yellowish brown (10YR 6/4) gravelly silt loam; weak very coarse prismatic structure parting to weak medium subangular blocky; extremely firm, slightly sticky, slightly plastic; 15 percent discontinuous distinct light brownish gray (2.5Y 6/2) silt coats on vertical faces of peds and between prisms; 1 percent fine distinct spherical iron-manganese concretions in matrix, 10 percent medium distinct irregular yellowish brown (10YR 5/6) iron-manganese masses in matrix, and 30 percent medium distinct irregular light brownish gray (10YR 6/2) iron depletions in matrix; 25 percent fragments of chert; brittle in 90 percent of the mass; very strongly acid; gradual smooth boundary.

Btx2—38 to 60 inches; yellowish brown (10YR 5/6) very gravelly silt loam; weak very coarse prismatic structure parting to weak medium subangular blocky; extremely firm, slightly sticky, slightly plastic; 10 percent discontinuous and 10 percent continuous prominent light brownish gray (2.5Y 6/2) silt coats on vertical faces of prisms; 1 percent fine distinct spherical black (10YR 2/1) iron-manganese concretions throughout, 10 percent medium distinct irregular strong brown (7.5YR 5/8) iron-manganese masses in matrix, and 40 percent medium distinct irregular light brownish gray (10YR 6/2) iron depletions between prisms; 55 percent fragments of chert; brittle in 90 percent of the mass; very strongly acid; gradual smooth boundary.

Cx—60 to 81 inches; yellowish brown (10YR 5/6) very gravelly silty clay loam; massive; very firm, slightly sticky, slightly plastic; 10 percent medium distinct irregular strong brown (7.5YR 5/6) iron-manganese masses in matrix and 40 percent coarse distinct irregular light brownish gray (10YR 6/2) iron depletions throughout; 51 percent fragments of chert; brittle in 50 to 60 percent of the mass; very strongly acid.

Range in Characteristics

Depth to restrictive feature: 18 to 30 inches to a fragipan
Diagnostic feature(s): Fragipan, ochric epipedon, and argillic horizon
Surface fragments: None
Seasonal high water table (months, type): December to May; perched
Depth to top of water table: 17 to 28 inches

Ap horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Rock fragment content—10 to 35 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.5 to 2.0 percent

BA horizon:
Hue—7.5YR or 10YR

Value—4 to 6
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam
Rock fragment content—10 to 35 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam or silty clay loam
Rock fragment content—10 to 35 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron-manganese concentrations and few or common iron depletions

Btx horizon:
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
Rock fragment content—25 to 75 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron-manganese concentrations and few to many iron depletions

Cx horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam or silty clay loam
Rock fragment content—25 to 75 percent
Reaction—pH 3.6 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron-manganese concentrations and few to many iron depletions

Teddy Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan; slow or very slow in the fragipan
Landform position: Summits
Parent material: Loamy deposits over clayey residuum of limestone
Slope range: 2 to 6 percent
Taxonomic classification: Fine-loamy, siliceous, semiactive, mesic Typic Fragiudults

Typical Pedon

Teddy silt loam, 2 to 6 percent slopes; about 6.5 miles north of Columbia, about 2.0 miles east-northeast of Cane Valley, 900 feet east of Bridgewater Road, in a pasture; USGS Cane Valley, Kentucky topographic quadrangle; lat. 37 degrees 11 minutes

32.00 seconds N. and long. 85 degrees 17 minutes 19.00 seconds W.; UTM Zone 16, 651894 meters easting, 4117571 meters northing; NAD83:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; common fine roots throughout; moderately acid; abrupt smooth boundary.

Bt—9 to 24 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots throughout; 5 percent faint clay films on surfaces of peds; strongly acid; clear smooth boundary.

Btx1—24 to 36 inches; yellowish brown (10YR 5/4) silt loam; weak very coarse prismatic structure parting to weak medium subangular blocky; very firm, slightly sticky, slightly plastic; 5 percent discontinuous distinct light yellowish brown (10YR 6/4) silt coats on vertical faces of prisms and 10 percent discontinuous distinct brown (10YR 5/3) clay films on vertical faces of prisms; 1 percent fine distinct spherical greenish black (10Y 2/1) iron-manganese concretions in matrix, 5 percent medium distinct irregular strong brown (7.5YR 5/8) iron-manganese masses in matrix, and 20 percent coarse distinct irregular grayish brown (10YR 5/2) and light gray (10YR 7/2) iron depletions in matrix; brittle in 70 percent of the mass; strongly acid; clear wavy boundary.

Btx2—36 to 48 inches; yellowish brown (10YR 5/6) clay loam; weak very coarse prismatic structure parting to weak medium subangular blocky; very firm, slightly sticky, slightly plastic; 5 percent discontinuous distinct light yellowish brown (10YR 6/4) silt coats on vertical faces of prisms and 25 percent discontinuous distinct yellowish brown (10YR 5/4) clay films on vertical faces of prisms; 2 percent fine prominent spherical black (10YR 2/1) iron-manganese concretions in matrix, 5 percent fine prominent irregular yellowish red (5YR 5/6) iron-manganese masses in matrix, and 15 percent medium and coarse distinct irregular light brownish gray (10YR 6/2) iron depletions in matrix; 1 percent fragments of chert; brittle in 70 percent of the mass; very strongly acid; clear wavy boundary.

2Bt—48 to 80 inches; red (2.5YR 4/6) silty clay; moderate coarse subangular blocky structure parting to weak medium angular blocky; very firm, moderately sticky, moderately plastic; 25 percent discontinuous distinct reddish brown (2.5YR 4/4) clay films on all faces of peds; 10 percent medium prominent irregular yellowish brown (10YR 5/8) iron-manganese masses in matrix and 15 percent medium prominent irregular light brownish gray (10YR 6/2) iron depletions in matrix; 1 percent fragments of chert; very strongly acid.

Range in Characteristics

Depth to restrictive feature: 18 to 36 inches to a fragipan
Diagnostic feature(s): Fragipan, ochric epipedon, and argillic horizon
Surface fragments: None
Seasonal high water table (months): December to May
Depth to top of water table: 18 to 30 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 2.0 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—3 to 6

Texture—silt loam, loam, or silty clay loam
Rock fragment content—0 to 1 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron-manganese concentrations and few or common iron depletions

Btx horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—3 to 8
Texture—clay loam, silt loam, or loam
Rock fragment content—0 to 2 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron-manganese concentrations and few or common iron depletions

2Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—1 to 6
Texture—clay loam, silty clay loam, or silty clay
Rock fragment content—0 to 15 percent
Reaction—pH 4.5 to 5.5
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron-manganese concentrations and few or common iron depletions

Weikert Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Landform position: Shoulders and summits
Parent material: Residuum from siltstone and limestone
Slope range: 2 to 20 percent
Taxonomic classification: Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

Typical Pedon

Weikert channery silt loam in an area of Weikert-Culleoka complex, 6 to 12 percent slopes; about 5.5 miles south of Columbia, about 2 miles northwest of Glens Fork, 1,000 feet west of the West Prong of Glens Fork, on the north side of Yellow Hammer Road, in a road cut; USGS Columbia, Kentucky topographic quadrangle; lat. 37 degrees 0 minutes 42.00 seconds N. and long. 85 degrees 15 minutes 54.00 seconds W.; UTM Zone 16, 654356 meters easting, 4097574 meters northing; NAD83:

A—0 to 7 inches; brown (10YR 4/3) channery silt loam; weak fine granular structure; very friable; common fine roots throughout; 20 percent channers of siltstone; slightly acid; abrupt smooth boundary.

Bw—7 to 15 inches; 95 percent yellowish brown (10YR 5/4) and 5 percent very pale brown (10YR 7/3) very channery silt loam; weak fine subangular blocky structure; friable, non-sticky, non-plastic; few fine roots throughout; 40 percent channers of siltstone; strongly acid; clear wavy boundary.

Cr—15 to 25 inches; dark gray (10YR 4/1) weathered siltstone; moderately acid; gradual wavy boundary.
R—25 inches; siltstone bedrock.

Range in Characteristics

Depth to restrictive feature: 10 to 25 inches to paralithic bedrock; 10 to 28 inches to lithic bedrock
Diagnostic feature(s): Ochric epipedon, lithic contact, cambic horizon, and paralithic contact
Surface fragments: None
Seasonal high water table: None

A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Rock fragment content—5 to 50 percent
Reaction—pH 4.5 to 6.0
Organic matter content—1.0 to 2.0 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture of the fine-earth fraction—loam or silt loam
Rock fragment content—35 to 60 percent
Reaction—pH 4.5 to 5.6
Organic matter content—0.0 to 0.5 percent

Yosemite Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately rapid or rapid
Parent material: Gravelly alluvium
Slope range: 0 to 2 percent
Taxonomic classification: Loamy-skeletal, mixed, semiactive, nonacid, mesic Fluventic Endoaquepts

Typical Pedon

Yosemite gravelly silt loam, frequently flooded; about 17 miles northeast of Columbia, 1.30 miles east of Casey Creek, 0.1 mile north-northwest of Kentucky Highway 551 at Abells Spring Branch; USGS Mannsville, Kentucky topographic quadrangle; lat. 37 degrees 16 minutes 4.00 seconds N. and long. 85 degrees 8 minutes 27.00 seconds W.; UTM Zone 16, 664858 meters easting, 4126192 meters northing; NAD83:

Ap—0 to 9 inches; dark brown (10YR 3/3) gravelly silt loam; weak fine granular structure; very friable; common fine roots throughout; 20 percent fragments of chert; moderately acid; abrupt smooth boundary.
Bw—9 to 17 inches; yellowish brown (10YR 5/4) very gravelly loam; weak medium subangular blocky structure; friable, non-sticky, non-plastic; common fine roots throughout; 10 percent medium distinct irregular light brownish gray (10YR 6/2) iron depletions in matrix and 2 percent fine distinct threadlike reddish yellow

(7.5YR 6/8) iron-manganese masses on surfaces along root channels; 40 percent fragments of chert; moderately acid; abrupt smooth boundary.

Bg—17 to 30 inches; light brownish gray (10YR 6/2) very gravelly loam; weak medium subangular blocky structure; friable, non-sticky, non-plastic; few fine roots throughout; 10 percent medium distinct irregular yellowish brown (10YR 5/8) iron-manganese masses in matrix; 50 percent fragments of chert; moderately acid; clear smooth boundary.

Cg—30 to 80 inches; light brownish gray (10YR 6/2) extremely gravelly sandy loam; single grain; loose; 10 percent medium distinct irregular yellowish brown (10YR 5/6) iron-manganese masses in matrix; 60 percent fragments of chert; moderately acid.

Range in Characteristics

Depth to restrictive feature: More than 80 inches
Diagnostic feature(s): Ochric epipedon, aquic conditions, cambic horizon, and endosaturation
Surface fragments: None
Seasonal high water table (months): December to May
Depth to top of water table: 12 to 18 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Rock fragment content—15 to 35 percent
Reaction—pH 5.6 to 7.8
Organic matter content—1.0 to 4.0 percent

Bw horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—loam or silt loam
Rock fragment content—20 to 40 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—few or common iron-manganese concentrations and few to many iron depletions

Bg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture of the fine-earth fraction—loam, silt loam, or sandy loam
Rock fragment content—35 to 80 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—reduced matrix and few or common iron-manganese concentrations

Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture of the fine-earth fraction—sandy loam, sandy clay loam, or clay loam

Rock fragment content—35 to 85 percent
Reaction—pH 5.6 to 7.8
Organic matter content—0.0 to 0.5 percent
Redoximorphic features—reduced matrix and few or common iron-manganese concentrations

References

(1) American Association of State Highway and Transportation Officials (AASHTO). 1998. Standard specifications for transportation materials and methods of sampling and testing. 19th ed., 2 vols.

(2) American Society for Testing and Materials (ASTM). 1998. Standard classification of soils for engineering purposes. ASTM Stand. D 2487.

(3) Commonwealth of Kentucky. 2007. Welcome to Adair County! (Available at http://www.adaircounty.ky.gov/)

(4) Strong, David. 2001. Adair County, Kentucky's 44th county. The Kentucky Explorer. (Available at http://freepages.genealogy.rootsweb.com/~mysurnames/adairkehp1.htm)

(5) United States Census Bureau QuickFact at http://quickfacts.census.gov/qfd/states/21/21001.html.

(6) United States Department of Agriculture, Natural Resources Conservation Service. 1993. Soil survey manual. Soil Surv. Staff. U.S. Dep. Agric. Handb. 18.

(7) United States Department of Agriculture, Natural Resources Conservation Service. 1996. Soil survey laboratory methods manual. Soil Surv. Invest. Rep. 42.

(8) United States Department of Agriculture, Natural Resources Conservation Service. 1998. Keys to soil taxonomy. 8th ed. Soil Surv. Staff.

(9) United States Department of Agriculture, Natural Resources Conservation Service. 1998 (revised). National forestry manual. Soil Surv. Staff.

(10) United States Department of Agriculture, Natural Resources Conservation Service. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd ed. Soil Surv. Staff. U.S. Dep. of Agric. Handb. 436.

(11) United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Dep. of Agric. Handb. 210.

(12) United States Department of Agriculture, Soil Conservation Service. 1961. Soil survey of Adair County, Kentucky.

(13) University of Kentucky. 2007. Kentucky Atlas and Gazetter. (Available at http://www.uky.edu/KentuckyAtlas/21001.html)

(14) Wikipedia contributors, ‘Adair County, Kentucky’, Wikipedia, The Free Encyclopedia, 17 September 2007, 23:29 UTC. Accessed October 1, 2007. (Available at http://en.wikipedia.org/wiki/Adair_County,_Kentucky)

Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 40-inch profile or to a limiting layer is expressed as:

Very low	0 to 2
Low	2 to 4
Moderate	4 to 6
High	more than 6

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 a 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.

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.

Bottom land. The normal flood plain of a stream, subject to flooding.

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.

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.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chert. An impure, very fine-grained siliceous rock frequently associated with limestones, dolomites, and conglomerates.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

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.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

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 soils, 20 to 40 inches; shallow soils, 10 to 20 inches; and very shallow soils, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

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.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

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.

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 miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

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.

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.

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Landform. Any physical, recognizable form or feature on the earth's surface, having a characteristic shape, resulting from natural causes, and including major forms, such as a plain, hill, valley, or slope.

Landscape (geology). The distinct associations of landforms, especially as modified by geological forces, that can be seen in a single view.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Limestone. A sedimentary rock consisting chiefly of calcium carbonate, primarily in the form of calcite. Limestone is generally formed by a combination of organic and inorganic processes and includes soluble and insoluble constituents; many limestones contain fossils.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine-grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

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.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

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).

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipe-like cavities by water moving through the soil

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

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.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments ranging 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.

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.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland water flow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and co-dominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 2 percent
Undulating	2 to 6 percent
Rolling	6 to 12 percent
Hilly	12 to 20 percent
Steep	20 to 40 percent
Very steep	40 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow 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 (76 millimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10

Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (250 to 600 millimeters) in diameter if rounded or 15 to 24 inches (380 to 600 millimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stratified. Arranged in or composed of layers (strata).

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, BA, 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.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river or stream .

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse-grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1971-2000 at Summer Shade, Kentucky)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temp. higher than--	2 years in 10 will have-- Minimum temp. lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snow-fall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	44.0	25.0	34.5	70	-9	74	3.94	2.14	5.68	7	4.3
February-	49.9	28.5	39.2	75	-3	125	4.12	2.41	5.50	7	3.9
March----	59.5	36.6	48.1	82	11	295	5.12	3.03	6.67	9	1.1
April----	69.0	44.3	56.6	86	22	501	3.82	2.17	5.37	7	0.1
May------	76.4	53.4	64.9	88	33	771	4.98	3.00	6.84	8	0.0
June-----	83.8	61.5	72.7	94	44	978	4.43	2.11	6.74	7	0.0
July-----	87.3	65.6	76.4	97	52	1,129	4.34	2.28	6.44	6	0.0
August---	86.1	63.8	74.9	96	50	1,082	3.43	1.77	5.03	5	0.0
September	80.0	57.4	68.7	93	37	861	3.81	1.72	5.63	5	0.0
October--	69.6	45.5	57.6	85	25	544	3.17	1.43	4.77	5	0.0
November-	58.3	36.7	47.5	79	14	267	4.27	2.51	5.93	7	0.2
December-	48.4	29.0	38.7	71	1	118	4.95	2.60	6.76	7	1.2
Yearly:											
Average	67.7	45.6	56.7	---	---	---	---	---	---	---	---
Extreme	102	-26	---	98	-13	---	---	---	---	---	---
Total--	---	---	---	---	---	6,745	50.39	42.37	58.36	80	10.8

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Summer Shade, Kentucky)

Probability	Temperature		
	24 ^{o}F or lower	28 ^{o}F or lower	32 ^{o}F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 14	Apr. 18	May 5
2 years in 10 later than--	Apr. 8	Apr. 14	Apr. 29
5 years in 10 later than--	Mar. 29	Apr. 6	Apr. 19
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 23	Oct. 11	Oct. 3
2 years in 10 earlier than--	Oct. 29	Oct. 17	Oct. 8
5 years in 10 earlier than-	Nov. 9	Oct. 28	Oct. 16

Table 3.—Growing Season

(Recorded in the period 1971-2000 at Summer Shade, Kentucky)

Probability	Daily minimum temperature during growing season		
	Higher than 24 ^{o}F	Higher than 28 ^{o}F	Higher than 32 ^{o}F
	Days	Days	Days
9 years in 10	200	185	161
8 years in 10	208	192	167
5 years in 10	224	204	180
2 years in 10	240	217	192
1 year in 10	249	223	199

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
CaC	Carpenter gravelly silt loam, 6 to 12 percent slopes	1,910	0.7
CbE	Carpenter-Lenberg complex, 12 to 40 percent slopes	4,400	1.7
Cg	Chagrin fine sandy loam, occasionally flooded	401	0.2
CwB	Culleoka-Weikert complex, 2 to 6 percent slopes	1,500	0.6
Du	Dunning silty clay loam, rarely flooded	134	*
EwB	Etowah silt loam, 2 to 6 percent slopes	840	0.3
EwC	Etowah silt loam, 6 to 12 percent slopes	259	*
FkB	Frankstown gravelly silt loam, 2 to 6 percent slopes	1,022	0.4
FkC2	Frankstown gravelly silt loam, 6 to 12 percent slopes, eroded	10,677	4.0
FkD2	Frankstown gravelly silt loam, 12 to 20 percent slopes, eroded	12,901	4.9
FrB2	Frederick silt loam, 2 to 6 percent slopes, eroded	2,044	0.8
FrC2	Frederick silt loam, 6 to 12 percent slopes, eroded	22,638	8.6
FrD2	Frederick silt loam, 12 to 20 percent slopes, eroded	21,308	8.1
FvE	Frederick-Caneyville complex, 20 to 40 percent slopes, rocky	13,271	5.0
GaF	Garmon channery silt loam, 20 to 70 percent slopes	63,996	24.2
GpB	Gilpin channery silt loam, 2 to 6 percent slopes	28	*
GpC	Gilpin channery silt loam, 6 to 12 percent slopes	758	0.3
GpD	Gilpin channery silt loam, 12 to 20 percent slopes	2,376	0.9
Jo	Johnsburg silt loam	2,021	0.8
La	Lawrence silt loam	3,163	1.2
Ld	Lindside silt loam, occasionally flooded	1,443	0.5
LoB	Lonewood loam, 2 to 6 percent slopes	154	*
LoC	Lonewood loam, 6 to 12 percent slopes	302	0.1
Me	Melvin silt loam, occasionally flooded	1,034	0.4
Mp	Melvin silt loam, ponded	182	*
NeB	Needmore silt loam, 2 to 6 percent slopes	350	0.1
NeC2	Needmore silt loam, 6 to 12 percent slopes, eroded	1,777	0.7
NeD3	Needmore silty clay loam, 12 to 20 percent slopes, severely eroded	1,189	0.5
NfD	Needmore silt loam, 6 to 20 percent slopes, very rocky	5,462	2.1
Nk	Newark silt loam, occasionally flooded	6,355	2.4
No	Nolin silt loam, occasionally flooded	6,869	2.6
OtA	Otwood silt loam, 0 to 2 percent slopes	309	0.1
OtB	Otwood silt loam, 2 to 6 percent slopes	3,755	1.4
OtC2	Otwood silt loam, 6 to 12 percent slopes, eroded	3,407	1.3
Pq	Pits, quarry	112	*
PrB	Pricetown silt loam, 2 to 6 percent slopes	5,674	2.1
PrC	Pricetown silt loam, 6 to 12 percent slopes	9,733	3.7
RnB	Riney loam, 2 to 6 percent slopes	51	*
RnC	Riney loam, 6 to 12 percent slopes	830	0.3
Ro	Robertsville silt loam, rarely flooded	1,882	0.7
RpD	Rock outcrop-Caneyville complex, 6 to 20 percent slopes	2	*
RsF	Rohan channery silt loam, 20 to 60 percent slopes	919	0.3
Sa	Sano silt loam, 1 to 4 percent slopes	8,666	3.3
Sk	Skidmore gravelly loam, frequently flooded	5,366	2.0
TaB	Tarklin gravelly silt loam, 2 to 6 percent slopes	1,690	0.6
TaC	Tarklin gravelly silt loam, 6 to 12 percent slopes	1,683	0.6
TeB	Teddy silt loam, 2 to 6 percent slopes	4,812	1.8
Ud	Udarents-Urban land complex, 2 to 20 percent slopes	703	0.3
Ur	Urban land	123	*
Us	Urban land-Frederick-Pricetown complex, 2 to 20 percent slopes	1,459	0.6
Uw	Urban land-Weikert-Culleoka complex, 2 to 20 percent slopes	1,465	0.6
W	Water	4,694	1.8
WcC	Weikert-Culleoka complex, 6 to 12 percent slopes	7,442	2.8
WcD	Weikert-Culleoka complex, 12 to 20 percent slopes	6,774	2.6
Yo	Yosemite gravelly silt loam, frequently flooded	1,659	0.6
	Total	263,974	100.0

* Less than 0.1 percent.

Table 5.—Land Capability and Non-Irrigated Yields by Map Unit, Part I

(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	Soybeans	Tobacco	Wheat
		Bu	Bu	Lbs	Bu
CaC: Carpenter	3e	100.00	30.00	2,300.00	30.00
CbE: Carpenter-Lenberg	6e	---	---	---	---
Cg: Chagrin	2w	150.00	50.00	3,200.00	50.00
CwB: Culleoka-Weikert	4s	70.00	25.00	---	30.00
Du: Dunning	3w	120.00	45.00	---	---
EwB: Etowah	2e	150.00	50.00	3,200.00	70.00
EwC: Etowah	3e	125.00	35.00	2,700.00	50.00
FkB: Frankstown	2e	130.00	40.00	2,800.00	60.00
FkC2: Frankstown	3e	120.00	30.00	2,600.00	45.00
FkD2: Frankstown	4e	110.00	25.00	1,900.00	35.00
FrB2: Frederick	2e	150.00	50.00	3,000.00	60.00
FrC2: Frederick	3e	125.00	30.00	2,600.00	45.00
FrD2: Frederick	4e	115.00	---	2,000.00	30.00
FvE: Frederick-Caneyville	7e	---	---	---	---
GaF: Garmon	7e	---	---	---	---
GpB: Gilpin	2e	100.00	30.00	2,000.00	50.00
GpC: Gilpin	3e	90.00	25.00	1,900.00	45.00
GpD: Gilpin	4e	80.00	---	---	30.00
Jo: Johnsburg	3w	125.00	35.00	2,200.00	55.00

Table 5.—Land Capability and Non-Irrigated Yields by Map Unit, Part I—Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat
		Bu	Bu	Lbs	Bu
La----------------------- Lawrence	3w	125.00	35.00	2,200.00	55.00
Ld----------------------- Lindside	2w	150.00	40.00	2,800.00	60.00
LoB---------------------- Lonewood	2e	130.00	50.00	3,000.00	70.00
LoC---------------------- Lonewood	3e	125.00	35.00	2,600.00	55.00
Me----------------------- Melvin	4w	80.00	35.00	---	---
Mp----------------------- Melvin	5w	---	---	---	---
NeB---------------------- Needmore	2e	100.00	30.00	2,000.00	50.00
NeC2--------------------- Needmore	3e	90.00	20.00	1,800.00	45.00
NeD3--------------------- Needmore	6e	---	---	---	---
NfD---------------------- Needmore	6e	---	---	---	---
Nk----------------------- Newark	3w	125.00	35.00	---	35.00
No----------------------- Nolin	2w	155.00	50.00	3,200.00	60.00
OtA---------------------- Otwood	2w	135.00	45.00	2,700.00	60.00
OtB---------------------- Otwood	2e	135.00	40.00	2,400.00	70.00
OtC2--------------------- Otwood	3e	120.00	35.00	2,000.00	55.00
Pq. Pits, quarry					
PrB---------------------- Pricetown	2e	150.00	50.00	3,200.00	70.00
PrC---------------------- Pricetown	3e	140.00	40.00	2,700.00	65.00
RnB---------------------- Riney	2e	130.00	50.00	3,000.00	70.00
RnC---------------------- Riney	3e	125.00	40.00	2,100.00	60.00

Table 5.—Land Capability and Non-Irrigated Yields by Map Unit, Part I—Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat
		Bu	Bu	Lbs	Bu
Ro----------------------- Robertsville	4w	80.00	30.00	---	---
RpD---------------------- Rock outcrop-Caneyville	6s	---	---	---	---
RsF---------------------- Rohan	7e	---	---	---	---
Sa----------------------- Sano	2w	135.00	35.00	2,600.00	75.00
Sk----------------------- Skidmore	2w	90.00	40.00	---	---
TaB---------------------- Tarklin	2e	125.00	35.00	2,100.00	50.00
TaC---------------------- Tarklin	3e	120.00	30.00	1,850.00	45.00
TeB---------------------- Teddy	2e	135.00	40.00	2,600.00	70.00
Ud. Udarents-Urban land					
Ur. Urban land					
Us. Urban land-Frederick-Pricetown					
Uw. Urban land-Weikert-Culleoka					
W. Water					
WcC---------------------- Weikert-Culleoka	6s	---	---	---	---
WcD---------------------- Weikert-Culleoka	7s	---	---	---	---
Yo----------------------- Yosemite	3w	120.00	35.00	---	---

Table 5.—Land Capability and Non-Irrigated Yields by Map Unit, Part II

(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	Alfalfa hay	Grass-legume hay	Pasture
		Tons	Tons	AUM
CaC---------------------- Carpenter	3e	---	3.50	7.00
CbE---------------------- Carpenter-Lenberg	6e	---	---	4.00
Cg----------------------- Chagrin	2w	---	4.00	8.00
CwB---------------------- Culleoka-Weikert	4s	---	3.00	6.00
Du----------------------- Dunning	3w	---	4.50	8.00
EwB---------------------- Etowah	2e	4.50	6.00	9.00
EwC---------------------- Etowah	3e	4.00	5.00	8.50
FkB---------------------- Frankstown	2e	3.50	5.00	8.00
FkC2--------------------- Frankstown	3e	3.00	4.50	7.50
FkD2--------------------- Frankstown	4e	---	3.50	7.00
FrB2--------------------- Frederick	2e	3.50	4.00	8.00
FrC2--------------------- Frederick	3e	3.00	3.50	7.00
FrD2--------------------- Frederick	4e	2.50	3.00	6.00
FvE---------------------- Frederick-Caneyville	7e	---	---	3.00
GaF---------------------- Garmon	7e	---	---	---
GpB---------------------- Gilpin	2e	2.50	3.00	6.00
GpC---------------------- Gilpin	3e	2.00	3.00	6.00
GpD---------------------- Gilpin	4e	---	2.50	5.00

Table 5.—Land Capability and Non-Irrigated Yields by Map Unit, Part II—Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass-legume hay	Pasture
		Tons	Tons	AUM
Jo: Johnsburg	3w	---	3.50	7.00
La: Lawrence	3w	---	3.50	6.00
Ld: Lindside	2w	---	3.50	8.00
LoB: Lonewood	2e	3.00	4.00	8.50
LoC: Lonewood	3e	2.50	3.50	8.00
Me: Melvin	4w	---	3.50	7.00
Mp: Melvin	5w	---	---	3.00
NeB: Needmore	2e	---	2.50	4.50
NeC2: Needmore	3e	---	2.00	4.00
NeD3: Needmore	6e	---	---	3.00
NfD: Needmore	6e	---	---	2.50
Nk: Newark	3w	---	4.00	8.50
No: Nolin	2w	---	5.00	10.00
OtA: Otwood	2w	---	3.00	8.50
OtB: Otwood	2e	---	3.00	9.00
OtC2: Otwood	3e	---	2.50	8.00
Pq. Pits, quarry				
PrB: Pricetown	2e	4.50	4.00	9.00
PrC: Pricetown	3e	4.00	4.00	8.50
RnB: Riney	2e	3.00	4.00	8.50

Table 5.—Land Capability and Non-Irrigated Yields by Map Unit, Part II—Continued

Map symbol and soil name	Land capability	Alfalfa hay	Grass-legume hay	Pasture
		Tons	Tons	AUM
RnC: Riney	3e	2.50	3.00	8.00
Ro: Robertsville	4w	---	3.00	6.00
RpD: Rock outcrop-Caneyville	6s	---	---	3.50
RsF: Rohan	7e	---	---	---
Sa: Sano	2w	---	3.00	9.00
Sk: Skidmore	2w	---	3.50	4.00
TaB: Tarklin	2e	---	3.00	8.00
TaC: Tarklin	3e	---	3.00	7.50
TeB: Teddy	2e	---	3.00	9.00
Ud. Udarents-Urban land				
Ur. Urban land				
Us. Urban land-Frederick-Pricetown				
Uw. Urban land-Weikert-Culleoka				
W. Water				
WcC: Weikert-Culleoka	6s	---	2.50	5.50
WcD: Weikert-Culleoka	7s	---	---	---
Yo: Yosemite	3w	---	2.00	7.00

Table 6.—Acreage by Capability Class and Subclass

Capability class	Capability subclass	Acreage
Unclassified	---	17,935
2	e	17,708
2	w	19,596
3	e	46,425
3	w	11,339
4	e	31,624
4	w	2,479
4	s	825
5	w	164
6	e	7,301
6	s	4,094
7	e	64,513
7	s	3,726

Table 7.—Prime Farmland

(Only the soils considered prime are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Map unit name
Cg	Chagrin fine sandy loam, occasionally flooded
Du	Dunning silty clay loam, rarely flooded (if previously drained)
EwB	Etowah silt loam, 2 to 6 percent slopes
FkB	Frankstown gravelly silt loam, 2 to 6 percent slopes
FrB2	Frederick silt loam, 2 to 6 percent slopes, eroded
GpB	Gilpin channery silt loam, 2 to 6 percent slopes
Jo	Johnsburg silt loam (if drained)
La	Lawrence silt loam (if drained)
Ld	Lindside silt loam, occasionally flooded
LoB	Lonewood loam, 2 to 6 percent slopes
Me	Melvin silt loam, occasionally flooded (if previously drained)
NeB	Needmore silt loam, 2 to 6 percent slopes
Nk	Newark silt loam, occasionally flooded (if drained)
No	Nolin silt loam, occasionally flooded
OtA	Otwood silt loam, 0 to 2 percent slopes
OtB	Otwood silt loam, 2 to 6 percent slopes
PrB	Pricetown silt loam, 2 to 6 percent slopes
RnB	Riney loam, 2 to 6 percent slopes
Ro	Robertsville silt loam, rarely flooded (if drained)
Sa	Sano silt loam, 1 to 4 percent slopes
TaB	Tarklin gravelly silt loam, 2 to 6 percent slopes
TeB	Teddy silt loam, 2 to 6 percent slopes

Table 8.—Forestland Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CaC:				
Carpenter	black oak	74	57	black oak, chestnut oak, northern red oak, scarlet oak, Virginia pine, white oak
	chestnut oak	70	43	
	northern red oak	71	57	
	scarlet oak	75	57	
	Virginia pine	74	114	
	white oak	71	57	
CbE:				
Carpenter	black oak	74	57	black oak, chestnut oak, northern red oak, scarlet oak, Virginia pine, white oak
	chestnut oak	67	43	
	northern red oak	71	57	
	scarlet oak	75	57	
	Virginia pine	74	114	
	white oak	71	57	
Lenberg	black oak	60	43	black oak, chestnut oak, northern red oak, scarlet oak, Virginia pine, white oak
	chestnut oak	56	43	
	post oak	46	29	
	scarlet oak	66	57	
	Virginia pine	61	86	
	white oak	62	43	
Cg:				
Chagrin	northern red oak	86	72	northern red oak, sugar maple, yellow-poplar
	sugar maple	86	57	
	yellow-poplar	85	86	
CwB:				
Culleoka	eastern redcedar	40	40	eastern redcedar, eastern white pine, Virginia pine, yellow-poplar
	Virginia pine	70	85	
Weikert	eastern redcedar	40	40	eastern redcedar, eastern white pine, Virginia pine
	Virginia pine	70	85	
Du:				
Dunning	American sycamore	90	82	American sycamore, pin oak, swamp white oak, sweetgum
	pin oak	95	86	
	swamp white oak	82	82	
	sweetgum	95	114	
EwB:				
Etowah	shortleaf pine	85	129	shortleaf pine, southern red oak, white oak, yellow-poplar
	southern red oak	80	57	
	white oak	70	57	
	yellow-poplar	100	86	
EwC:				
Etowah	shortleaf pine	85	129	shortleaf pine, southern red oak, white oak, yellow-poplar
	southern red oak	80	57	
	white oak	70	57	
	yellow-poplar	100	86	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
FkB:				
Frankstown	northern red oak	79	57	northern red oak,
	shortleaf pine	80	129	shortleaf pine,
	Virginia pine	80	129	Virginia pine,
	white oak	80	57	white oak, yellow-
	yellow-poplar	85	86	poplar
FkC2:				
Frankstown	northern red oak	79	57	northern red oak,
	shortleaf pine	80	129	shortleaf pine,
	Virginia pine	80	129	Virginia pine,
	white oak	80	57	white oak, yellow-
	yellow-poplar	85	86	poplar
FkD2:				
Frankstown	northern red oak	79	57	northern red oak,
	shortleaf pine	80	129	shortleaf pine,
	Virginia pine	80	129	Virginia pine,
	white oak	80	57	white oak, yellow-
	yellow-poplar	85	86	poplar
FrB2:				
Frederick	shortleaf pine	65	113	shortleaf pine,
	yellow-poplar	80	71	yellow-poplar,
	Virginia pine	65	70	Virginia pine,
	white oak	65	48	white oak,
	northern red oak	65	48	northern red oak,
	eastern redcedar	40	40	eastern redcedar
FrC2:				
Frederick	shortleaf pine	65	113	shortleaf pine,
	yellow-poplar	80	71	yellow-poplar,
	Virginia pine	65	70	Virginia pine,
	white oak	65	48	white oak,
	northern red oak	65	48	northern red oak,
	eastern redcedar	40	40	eastern redcedar
FrD2:				
Frederick	shortleaf pine	65	113	shortleaf pine,
	yellow-poplar	80	71	yellow-poplar,
	Virginia pine	65	70	Virginia pine,
	white oak	65	48	white oak,
	northern red oak	65	48	northern red oak,
	eastern redcedar	40	40	eastern redcedar
FvE:				
Frederick	eastern redcedar	40	40	eastern redcedar,
	Virginia pine	65	70	Virginia pine,
	white oak	65	48	white oak
Caneyville	eastern redcedar	40	40	eastern redcedar,
	Virginia pine	65	70	Virginia pine,
	white oak	65	48	white oak
GaF:				
Garmon	chestnut oak	65	43	chestnut oak,
	eastern redcedar	40	40	eastern redcedar,
	northern red oak	72	57	northern red oak,
	white oak	75	57	white oak, yellow-
	yellow-poplar	99	100	poplar

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
GpB:				
Gilpin	northern red oak	80	57	northern red oak, white oak, yellow-poplar
	white oak	65	48	
	yellow-poplar	90	100	
GpC:				
Gilpin	northern red oak	80	57	northern red oak, white oak, yellow-poplar
	white oak	65	48	
	yellow-poplar	90	100	
GpD:				
Gilpin	northern red oak	80	57	northern red oak, white oak, yellow-poplar
	white oak	65	48	
	yellow-poplar	90	100	
Jo:				
Johnsburg	sweetgum	80	86	sweetgum, white ash, yellow-poplar
	white oak	73	57	
	yellow-poplar	94	100	
La:				
Lawrence	black oak	78	72	black oak, sweetgum, white oak, willow oak, yellow-poplar
	sweetgum	89	114	
	white oak	74	57	
	willow oak	76	72	
	yellow-poplar	85	86	
Ld:				
Lindside	northern red oak	86	72	northern red oak, white ash, white oak, yellow-poplar
	white ash	85	0	
	white oak	85	72	
	yellow-poplar	95	100	
LoB:				
Lonewood	eastern white pine	80	143	eastern white pine, northern red oak, shortleaf pine, Virginia pine, white oak
	northern red oak	78	57	
	shortleaf pine	70	114	
	Virginia pine	70	114	
	white oak	70	57	
LoC:				
Lonewood	eastern white pine	80	143	eastern white pine, northern red oak, shortleaf pine, Virginia pine, white oak
	northern red oak	78	57	
	shortleaf pine	70	114	
	Virginia pine	70	114	
	white oak	70	57	
Me:				
Melvin	green ash	80	87	green ash, pin oak, sweetgum
	pin oak	99	100	
	sweetgum	89	100	
Mp:				
Melvin	American sycamore	80	87	American sycamore, green ash, sweetgum
	green ash	80	87	
	sweetgum	82	90	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
NeB:				
Needmore	black oak	70	43	black oak, eastern redcedar, northern red oak, shortleaf pine, Virginia pine
	eastern redcedar	50	57	
	northern red oak	70	57	
	shortleaf pine	70	114	
	Virginia pine	70	114	
NeC2:				
Needmore	black oak	70	57	black oak, eastern redcedar, northern red oak, shortleaf pine, Virginia pine
	eastern redcedar	50	57	
	northern red oak	70	57	
	shortleaf pine	70	114	
	Virginia pine	70	114	
NeD3:				
Needmore	black oak	70	57	black oak, eastern redcedar, northern red oak, shortleaf pine, Virginia pine
	eastern redcedar	50	57	
	northern red oak	70	57	
	shortleaf pine	70	114	
	Virginia pine	70	114	
NfD:				
Needmore	eastern redcedar	50	57	eastern redcedar, Virginia pine
	Virginia pine	70	114	
Nk:				
Newark	cherrybark oak	82	82	cherrybark oak, green ash, pin oak, sweetgum
	green ash	80	80	
	pin oak	100	100	
	sweetgum	85	86	
No:				
Nolin	black walnut	100	0	black walnut, sweetgum, yellow-poplar
	sweetgum	92	114	
	yellow-poplar	107	114	
OtA:				
Otwood	black oak	72	57	black oak, white oak, yellow-poplar
	white oak	69	57	
	yellow-poplar	95	100	
OtB:				
Otwood	black oak	72	57	black oak, white oak, yellow-poplar
	white oak	69	57	
	yellow-poplar	95	100	
OtC2:				
Otwood	black oak	72	57	black oak, white oak, yellow-poplar
	white oak	69	57	
	yellow-poplar	95	100	
Pq.				
Pits, quarry				

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
PrB:				
Pricetown	black oak	85	72	black oak, scarlet oak, southern red oak, Virginia pine, white oak, yellow-poplar
	scarlet oak	71	57	
	southern red oak	83	57	
	Virginia pine	66	114	
	white oak	70	57	
	yellow-poplar	87	86	
PrC:				
Pricetown	black oak	85	72	black oak, scarlet oak, southern red oak, Virginia pine, white oak, yellow-poplar
	scarlet oak	71	57	
	southern red oak	83	57	
	Virginia pine	66	114	
	white oak	70	57	
	yellow-poplar	87	86	
RnB:				
Riney	eastern white pine	80	143	eastern white pine, shortleaf pine, Virginia pine, white oak
	shortleaf pine	70	114	
	Virginia pine	70	114	
	white oak	70	57	
RnC:				
Riney	eastern white pine	80	143	eastern white pine, shortleaf pine, Virginia pine, white oak
	shortleaf pine	70	114	
	Virginia pine	70	114	
	white oak	70	57	
Ro:				
Robertsville	green ash	80	88	green ash, pin oak, swamp white oak, sweetgum, yellow-poplar
	pin oak	96	86	
	sweetgum	94	129	
	yellow-poplar	93	100	
RpD:				
Rock outcrop.				
Caneyville	black oak	71	57	black oak, eastern redcedar, Virginia pine, white oak
	eastern redcedar	46	57	
	Virginia pine	90	92	
	white oak	64	43	
RsF:				
Rohan	black oak	63	43	black oak, chestnut oak, scarlet oak, Virginia pine
	chestnut oak	67	43	
	scarlet oak	56	43	
	Virginia pine	58	86	
Sa:				
Sano	cherrybark oak	70	57	cherrybark oak, shortleaf pine, white oak, yellow-poplar
	shortleaf pine	65	100	
	white oak	70	57	
	yellow-poplar	85	86	
Sk:				
Skidmore	American sycamore	80	0	American sycamore, sweetgum, yellow-poplar
	sweetgum	90	0	
	yellow-poplar	103	114	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
TaB:				
Tarklin	cherrybark oak	80	62	cherrybark oak, southern red oak, yellow-poplar
	southern red oak	80	57	
	yellow-poplar	90	86	
TaC:				
Tarklin	cherrybark oak	80	62	cherrybark oak, southern red oak, yellow-poplar
	southern red oak	80	57	
	yellow-poplar	90	86	
TeB:				
Teddy	black oak	73	57	black oak, southern red oak, yellow-poplar
	southern red oak	80	67	
	yellow-poplar	103	100	
Ud. Udarents-Urban land				
Ur. Urban land				
Us:				
Urban land.				
Frederick	shortleaf pine	65	113	shortleaf pine, yellow-poplar, Virginia pine, white oak, northern red oak, eastern redcedar
	yellow-poplar	80	71	
	Virginia pine	65	70	
	white oak	65	48	
	northern red oak	65	48	
	eastern redcedar	40	40	
Pricetown	black oak	85	72	black oak, scarlet oak, southern red oak, Virginia pine, white oak, yellow-poplar
	scarlet oak	71	57	
	southern red oak	83	57	
	Virginia pine	66	114	
	white oak	70	57	
	yellow-poplar	87	86	
Uw:				
Urban land.				
Weikert	eastern redcedar	40	40	eastern redcedar, eastern white pine, Virginia pine
	Virginia pine	70	85	
Culleoka	eastern redcedar	40	40	eastern redcedar, eastern white pine, Virginia pine, yellow-poplar
	Virginia pine	70	85	
W. Water				

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
WcC:				
Weikert	eastern redcedar	40	40	eastern redcedar, eastern white pine, Virginia pine
	Virginia pine	70	85	
Culleoka	eastern redcedar	40	40	eastern redcedar, eastern white pine, Virginia pine, yellow-poplar
	Virginia pine	70	85	
WcD:				
Weikert	eastern redcedar	40	40	eastern redcedar, eastern white pine, Virginia pine
	Virginia pine	70	85	
Culleoka	eastern redcedar	40	40	eastern redcedar, eastern white pine, Virginia pine, yellow-poplar
	Virginia pine	70	85	
Yo:				
Yosemite	pin oak	95	86	pin oak, sweetgum, Virginia pine, white oak, yellow-poplar
	sweetgum	86	100	
	Virginia pine	80	129	
	white oak	62	43	
	yellow-poplar	109	129	

Table 9.—Forestland Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
CaC:							
Carpenter-----------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
CbE:							
Carpenter-----------	45	Severe		Poorly suited		Severe	
		Landslides	1.00	Landslides	1.00	Low strength	1.00
		Slope	0.50	Slope	1.00		
		Stickiness/slope	0.50	Low strength	0.50		
Lenberg-------------	35	Severe		Poorly suited		Severe	
		Landslides	1.00	Landslides	1.00	Low strength	1.00
		Slope	0.50	Slope	1.00		
				Low strength	0.50		
Cg:							
Chagrin-------------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
CwB:							
Culleoka------------	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Restrictive layer	0.50				
Weikert-------------	35	Moderate		Well suited		Moderate	
		Restrictive layer	0.50			Low strength	0.50
Du:							
Dunning-------------	90	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
				Low strength	0.50		
EwB:							
Etowah--------------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
EwC:							
Etowah--------------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
FkB:							
Frankstown----------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
FkC2:							
Frankstown----------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
FkD2:							
Frankstown----------	90	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
FrB2:							
Frederick-----------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
FrC2:							
Frederick-----------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
FrD2:							
Frederick-----------	85	Moderate		Poorly suited		Severe	
		Landslides	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
				Landslides	0.50		
FvE:							
Frederick-----------	70	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
				Landslides	0.50		
Caneyville----------	20	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Restrictive layer	0.50	Low strength	0.50		
		Landslides	0.50	Landslides	0.50		
GaF:							
Garmon--------------	85	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
GpB:							
Gilpin--------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Restrictive layer	0.50				
GpC:							
Gilpin--------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Restrictive layer	0.50	Low strength	0.50		
GpD:							
Gilpin--------------	80	Severe		Poorly suited		Severe	
		Restrictive layer	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Landslides	0.10	Landslides	0.10		
Jo:							
Johnsburg-----------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
La:							
Lawrence------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
Ld:							
Lindside------------	85	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
LoB:							
Lonewood------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
LoC:							
Lonewood------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Me:							
Melvin--------------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		
Mp:							
Melvin--------------	90	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
NeB:							
Needmore------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
NeC2:							
Needmore------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
NeD3:							
Needmore------------	80	Moderate		Poorly suited		Severe	
		Landslides	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
				Landslides	0.50		
				Stickiness; high plasticity index	0.50		
NfD:							
Needmore------------	80	Moderate		Poorly suited		Severe	
		Landslides	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
				Landslides	0.50		
Nk:							
Newark--------------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
No:							
Nolin	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
OtA:							
Otwood	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
OtB:							
Otwood	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
OtC2:							
Otwood	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
				Wetness	0.50		
Pq:							
Pits, quarry	100	Not rated		Not rated		Not rated	
PrB:							
Pricetown	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
PrC:							
Pricetown	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
RnB:							
Riney	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
RnC:							
Riney	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Ro:							
Robertsville	85	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
				Low strength	0.50		
RpD:							
Rock outcrop	65	Not rated		Not rated		Not rated	
Caneyville	25	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Slope	0.50	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		
RsF:							
Rohan	90	Severe		Poorly suited		Moderate	
		Landslides	1.00	Slope	1.00	Low strength	0.50
		Slope	1.00	Landslides	1.00		

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
Sa:							
Sano----------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
Sk:							
Skidmore------------	85	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
TaB:							
Tarklin-------------	80	Slight		Well suited		Moderate	
						Low strength	0.50
TaC:							
Tarklin-------------	85	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
TeB:							
Teddy---------------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
Ud:							
Udarents------------	60	Not rated		Not rated		Not rated	
Urban land----------	40	Not rated		Not rated		Not rated	
Ur:							
Urban land----------	80	Not rated		Not rated		Not rated	
Us:							
Urban land----------	50	Not rated		Not rated		Not rated	
Frederick-----------	20	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Pricetown-----------	20	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Uw:							
Urban land----------	50	Not rated		Not rated		Not rated	
Weikert-------------	20	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Culleoka------------	20	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
W:							
Water---------------	100	Not rated		Not rated		Not rated	
WcC:							
Weikert-------------	55	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WcC:							
Culleoka	35	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
WcD:							
Weikert	55	Severe		Poorly suited		Severe	
		Restrictive layer	1.00	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
		Slope	0.50	Landslides	0.50		
Culleoka	35	Severe		Poorly suited		Severe	
		Restrictive layer	1.00	Slope	1.00	Low strength	1.00
		Landslides	0.50	Low strength	0.50		
		Slope	0.50	Landslides	0.50		
Yo:							
Yosemite	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
		Sandiness	0.50	Wetness	0.50		

Table 9.—Forestland Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
CaC:							
Carpenter	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
CbE:							
Carpenter	45	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Landslides	1.00
						Slope	1.00
						Low strength	0.50
Lenberg	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Landslides	1.00
						Slope	1.00
						Low strength	0.50
Cg:							
Chagrin	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
CwB:							
Culleoka	55	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
Weikert	35	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
Du:							
Dunning	90	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
EwB:							
Etowah	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
EwC:							
Etowah	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
FkB:							
Frankstown	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
FkC2:							
Frankstown	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
FkD2:							
Frankstown----------	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.10
FrB2:							
Frederick-----------	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
FrC2:							
Frederick-----------	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
FrD2:							
Frederick-----------	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
FvE:							
Frederick-----------	70	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
Caneyville----------	20	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
GaF:							
Garmon--------------	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
						Low strength	0.50
GpB:							
Gilpin--------------	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
GpC:							
Gilpin--------------	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
GpD:							
Gilpin--------------	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.10
Jo:							
Johnsburg-----------	85	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
La:							
Lawrence	85	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50
Ld:							
Lindside	85	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
						Wetness	0.50
LoB:							
Lonewood	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
LoC:							
Lonewood	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Me:							
Melvin	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
Mp:							
Melvin	90	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
NeB:							
Needmore	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
NeC2:							
Needmore	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
NeD3:							
Needmore	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
						Stickiness; high plasticity index	0.50
NfD:							
Needmore	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
Nk:							
Newark	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
No:							
Nolin	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
OtA:							
Otwood	85	Slight		Slight		Moderately suited	
						Low strength	0.50
OtB:							
Otwood	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
OtC2:							
Otwood	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Wetness	0.50
Pq:							
Pits, quarry	100	Not rated		Not rated		Not rated	
PrB:							
Pricetown	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
PrC:							
Pricetown	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
RnB:							
Riney	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
RnC:							
Riney	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Ro:							
Robertsville	85	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
RpD:							
Rock outcrop	65	Not rated		Not rated		Not rated	
Caneyville	25	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Landslides	0.50
RsF:							
Rohan	90	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sa:							
Sano----------------	85	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50
Sk:							
Skidmore------------	85	Slight		Slight		Poorly suited	
						Flooding	1.00
TaB:							
Tarklin-------------	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
TaC:							
Tarklin-------------	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
TeB:							
Teddy---------------	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
Ud:							
Udarents------------	60	Not rated		Not rated		Not rated	
Urban land----------	40	Not rated		Not rated		Not rated	
Ur:							
Urban land----------	80	Not rated		Not rated		Not rated	
Us:							
Urban land----------	50	Not rated		Not rated		Not rated	
Frederick-----------	20	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Pricetown-----------	20	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Uw:							
Urban land----------	50	Not rated		Not rated		Not rated	
Weikert-------------	20	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Culleoka------------	20	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
W:							
Water---------------	100	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
WcC:							
Weikert	55	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Culleoka	35	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
WcD:							
Weikert	55	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
Culleoka	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
Yo:							
Yosemite	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50

Table 9.—Forestland Management, Part III

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
CaC:							
Carpenter	85	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
CbE:							
Carpenter	45	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
				Rock fragments	0.50	Low strength	0.50
Lenberg	35	Poorly suited		Unsuited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	1.00	Slope	0.50
				Stickiness; high plasticity index	0.75	Low strength	0.50
Cg:							
Chagrin	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
CwB:							
Culleoka	55	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Weikert	35	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
Du:							
Dunning	90	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
EwB:							
Etowah	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
EwC:							
Etowah	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
FkB:							
Frankstown	90	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
FkC2:							
Frankstown	90	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness; high plasticity index	0.50		
FkD2:							
Frankstown	90	Moderately suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness; high plasticity index	0.50		

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
FrB2:							
Frederick	90	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
FrC2:							
Frederick	85	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
FrD2:							
Frederick	85	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	0.75	Low strength	0.50
				Stickiness; high plasticity index	0.75		
FvE:							
Frederick	70	Poorly suited		Unsuited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	1.00	Slope	0.50
				Stickiness; high plasticity index	0.75	Low strength	0.50
Caneyville	20	Poorly suited		Unsuited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	1.00	Slope	0.50
				Stickiness; high plasticity index	0.75	Low strength	0.50
GaF:							
Garmon	85	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
						Low strength	0.50
GpB:							
Gilpin	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
GpC:							
Gilpin	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
GpD:							
Gilpin	80	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
Jo:							
Johnsburg	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
La:							
Lawrence	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Ld:							
Lindside	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
LoB:							
Lonewood	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
LoC:							
Lonewood	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Me:							
Melvin	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Mp:							
Melvin	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
NeB:							
Needmore	85	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
NeC2:							
Needmore	85	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
NeD3:							
Needmore	80	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	0.75	Low strength	0.50
				Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.50
NfD:							
Needmore	80	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
Nk:							
Newark	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
No:							
Nolin	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
OtA:							
Otwood	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
OtB:							
Otwood	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
OtC2:							
Otwood	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Pq:							
Pits, quarry	100	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
PrB:							
Pricetown	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
PrC:							
Pricetown	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
RnB:							
Riney	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
RnC:							
Riney	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Ro:							
Robertsville	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
RpD:							
Rock outcrop	65	Not rated		Not rated		Not rated	
Caneyville	25	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
RsF:							
Rohan	90	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Stickiness; high plasticity index	0.50	Rock fragments	0.50		
		Rock fragments	0.50	Stickiness; high plasticity index	0.50		
Sa:							
Sano	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Skidmore	85	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
TaB:							
Tarklin	80	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
TaC:							
Tarklin	85	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
TeB:							
Teddy	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Ud:							
Udarents	60	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
Ur:							
Urban land	80	Not rated		Not rated		Not rated	
Us:							
Urban land	50	Not rated		Not rated		Not rated	
Frederick	20	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
Pricetown	20	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Uw:							
Urban land	50	Not rated		Not rated		Not rated	
Weikert	20	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
				Rock fragments	0.50		
Culleoka	20	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
W:							
Water	100	Not rated		Not rated		Not rated	
WcC:							
Weikert	55	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
Culleoka	35	Moderately suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Rock fragments	0.75	Low strength	0.50
		Rock fragments	0.50	Slope	0.50		
				Stickiness; high plasticity index	0.50		
WcD:							
Weikert	55	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50		
Culleoka	35	Moderately suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Rock fragments	0.75	Low strength	0.50
		Rock fragments	0.50	Slope	0.75		
				Stickiness; high plasticity index	0.50		
Yo:							
Yosemite	85	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50

Table 9.—Forestland Management, Part IV

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
CaC:					
Carpenter	85	Well suited		Well suited	
CbE:					
Carpenter	45	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Lenberg	35	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
		Stickiness; high plasticity index	0.50	Slope	0.50
Cg:					
Chagrin	85	Well suited		Well suited	
CwB:					
Culleoka	55	Well suited		Well suited	
Weikert	35	Well suited		Unsuited	
				Restrictive layer	1.00
Du:					
Dunning	90	Well suited		Well suited	
EwB:					
Etowah	90	Well suited		Well suited	
EwC:					
Etowah	90	Well suited		Well suited	
FkB:					
Frankstown	90	Well suited		Well suited	
FkC2:					
Frankstown	90	Well suited		Well suited	
FkD2:					
Frankstown	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
FrB2:					
Frederick	90	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
FrC2:					
Frederick	85	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		

Table 9.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
FrD2:					
Frederick-----------	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness; high plasticity index	0.50		
FvE:					
Frederick-----------	70	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness; high plasticity index	0.50		
Caneyville----------	20	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
GaF:					
Garmon--------------	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
				Restrictive layer	0.50
GpB:					
Gilpin--------------	85	Well suited		Poorly suited	
				Restrictive layer	0.50
GpC:					
Gilpin--------------	85	Well suited		Poorly suited	
				Restrictive layer	0.50
GpD:					
Gilpin--------------	80	Poorly suited		Poorly suited	
		Slope	0.50	Restrictive layer	0.50
				Slope	0.50
Jo:					
Johnsburg-----------	85	Well suited		Well suited	
La:					
Lawrence------------	85	Well suited		Well suited	
Ld:					
Lindside------------	85	Well suited		Well suited	
LoB:					
Lonewood------------	85	Well suited		Well suited	
LoC:					
Lonewood------------	85	Well suited		Well suited	
Me:					
Melvin--------------	85	Well suited		Well suited	
Mp:					
Melvin--------------	90	Well suited		Well suited	
NeB:					
Needmore------------	85	Poorly suited		Unsuited	
		Stickiness; high plasticity index	0.50	Restrictive layer	1.00

Table 9.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
NeC2:					
Needmore	85	Poorly suited		Poorly suited	
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
NeD3:					
Needmore	80	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
		Stickiness; high plasticity index	0.50	Slope	0.50
NfD:					
Needmore	80	Poorly suited		Unsuited	
		Stickiness; high plasticity index	0.50	Restrictive layer	1.00
Nk:					
Newark	85	Well suited		Well suited	
No:					
Nolin	85	Well suited		Well suited	
OtA:					
Otwood	85	Well suited		Well suited	
OtB:					
Otwood	85	Well suited		Well suited	
OtC2:					
Otwood	85	Well suited		Well suited	
Pq:					
Pits, quarry	100	Not rated		Not rated	
PrB:					
Pricetown	85	Well suited		Well suited	
PrC:					
Pricetown	85	Well suited		Well suited	
RnB:					
Riney	85	Well suited		Well suited	
RnC:					
Riney	85	Well suited		Well suited	
Ro:					
Robertsville	85	Well suited		Well suited	
RpD:					
Rock outcrop	65	Not rated		Not rated	
Caneyville	25	Poorly suited		Poorly suited	
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
RsF:					
Rohan	90	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00

Table 9.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
Sa:					
Sano	85	Well suited		Well suited	
Sk:					
Skidmore	85	Well suited		Well suited	
TaB:					
Tarklin	80	Well suited		Well suited	
TaC:					
Tarklin	85	Well suited		Well suited	
TeB:					
Teddy	90	Well suited		Well suited	
Ud:					
Udarents	60	Not rated		Not rated	
Urban land	40	Not rated		Not rated	
Ur:					
Urban land	80	Not rated		Not rated	
Us:					
Urban land	50	Not rated		Not rated	
Frederick	20	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
Pricetown	20	Well suited		Well suited	
Uw:					
Urban land	50	Not rated		Not rated	
Weikert	20	Well suited		Unsuited	
				Restrictive layer	1.00
Culleoka	20	Well suited		Well suited	
W:					
Water	100	Not rated		Not rated	
WcC:					
Weikert	55	Well suited		Unsuited	
				Restrictive layer	1.00
Culleoka	35	Poorly suited		Poorly suited	
		Rock fragments	0.50	Restrictive layer	0.50
WcD:					
Weikert	55	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
Culleoka	35	Poorly suited		Poorly suited	
		Slope	0.50	Restrictive layer	0.50
		Rock fragments	0.50	Slope	0.50
Yo:					
Yosemite	85	Well suited		Well suited	

Table 9.—Forestland Management, Part V

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
CaC:					
Carpenter	85	Low		Low	
		Texture/rock fragments	0.10		
CbE:					
Carpenter	45	Low		Low	
		Texture/rock fragments	0.10		
Lenberg	35	Low		Low	
		Texture/rock fragments	0.10		
Cg:					
Chagrin	85	Low		Low	
		Texture/rock fragments	0.10		
CwB:					
Culleoka	55	Moderate		Low	
		Texture/rock fragments	0.50		
Weikert	35	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
Du:					
Dunning	90	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
EwB:					
Etowah	90	Low		Low	
		Texture/rock fragments	0.10		
EwC:					
Etowah	90	Low		Low	
		Texture/rock fragments	0.10		
FkB:					
Frankstown	90	Moderate		Low	
		Texture/rock fragments	0.50		
FkC2:					
Frankstown	90	Moderate		Low	
		Texture/rock fragments	0.50		

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
FkD2:					
Frankstown----------	90	Moderate		Low	
		Texture/rock fragments	0.50		
FrB2:					
Frederick-----------	90	Moderate		Low	
		Texture/rock fragments	0.50		
FrC2:					
Frederick-----------	85	Moderate		Low	
		Texture/rock fragments	0.50		
FrD2:					
Frederick-----------	85	Moderate		Low	
		Texture/rock fragments	0.50		
FvE:					
Frederick-----------	70	Moderate		Low	
		Texture/rock fragments	0.50		
Caneyville----------	20	Low		Low	
		Texture/rock fragments	0.10		
GaF:					
Garmon--------------	85	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
GpB:					
Gilpin--------------	85	Moderate		Low	
		Texture/rock fragments	0.50		
GpC:					
Gilpin--------------	85	Moderate		Low	
		Texture/rock fragments	0.50		
GpD:					
Gilpin--------------	80	Moderate		Low	
		Texture/rock fragments	0.50		
Jo:					
Johnsburg-----------	85	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
La:					
Lawrence------------	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
Ld:					
Lindside	85	Low		Low	
		Texture/rock fragments	0.10		
LoB:					
Lonewood	85	Low		Low	
		Texture/rock fragments	0.10		
LoC:					
Lonewood	85	Low		Low	
		Texture/rock fragments	0.10		
Me:					
Melvin	85	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
Mp:					
Melvin	90	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
NeB:					
Needmore	85	Moderate		Low	
		Texture/rock fragments	0.50		
NeC2:					
Needmore	85	Moderate		Low	
		Texture/rock fragments	0.50		
NeD3:					
Needmore	80	High		Low	
		Texture/surface depth/rock fragments	1.00		
NfD:					
Needmore	80	Moderate		Low	
		Texture/rock fragments	0.50		
Nk:					
Newark	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
No:					
Nolin	85	Low		Low	
		Texture/rock fragments	0.10		
OtA:					
Otwood	85	Moderate		Low	
		Texture/rock fragments	0.50		

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
OtB:					
Otwood	85	Moderate		Low	
		Texture/rock fragments	0.50		
OtC2:					
Otwood	85	Low		High	
				Wetness	1.00
Pq:					
Pits, quarry	100	Not rated		Not rated	
PrB:					
Pricetown	85	Low		Low	
		Texture/rock fragments	0.10		
PrC:					
Pricetown	85	Low		Low	
		Texture/rock fragments	0.10		
RnB:					
Riney	85	Low		Low	
		Texture/rock fragments	0.10		
RnC:					
Riney	85	Low		Low	
		Texture/rock fragments	0.10		
Ro:					
Robertsville	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
RpD:					
Rock outcrop	65	Not rated		Not rated	
Caneyville	25	Low		Low	
		Texture/rock fragments	0.10		
RsF:					
Rohan	90	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
Sa:					
Sano	85	Moderate		Moderate	
		Texture/rock fragments	0.50	Soil reaction	0.50
Sk:					
Skidmore	85	Moderate		Low	
		Texture/rock fragments	0.50		

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
TaB:					
Tarklin	80	Moderate		Low	
		Texture/rock fragments	0.50		
TaC:					
Tarklin	85	Moderate		Low	
		Texture/rock fragments	0.50		
TeB:					
Teddy	90	Moderate		Low	
		Texture/rock fragments	0.50		
Ud:					
Udarents, loamy	60	Not rated		Not rated	
Urban land	40	Not rated		Not rated	
Ur:					
Urban land	80	Not rated		Not rated	
Us:					
Urban land	50	Not rated		Not rated	
Frederick	20	Moderate		Low	
		Texture/rock fragments	0.50		
Pricetown	20	Moderate		Low	
		Texture/rock fragments	0.50		
Uw:					
Urban land	50	Not rated		Not rated	
Weikert	20	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
Culleoka	20	Moderate		Low	
		Texture/rock fragments	0.50		
W:					
Water	100	Not rated		Not rated	
WcC:					
Weikert	55	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50
Culleoka	35	Low		Low	
WcD:					
Weikert	55	Moderate		Moderate	
		Texture/rock fragments	0.50	Available water	0.50

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
WcD:					
Culleoka------------	35	Low		Low	
Yo:					
Yosemite------------	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00

Table 10.—Recreational Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CaC:							
Carpenter	85	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.96	Slow water movement	0.96	Slope	1.00
		Gravel content	0.20	Gravel content	0.20	Gravel content	1.00
		Slope	0.04	Slope	0.04	Slow water movement	0.96
CbE:							
Carpenter	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.96	Slow water movement	0.96	Gravel content	1.00
		Gravel content	0.20	Gravel content	0.20	Slow water movement	0.96
Lenberg	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99
						Depth to bedrock	0.58
						Gravel content	0.01
Cg:							
Chagrin	85	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
CwB:							
Culleoka	55	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.05	Gravel content	0.05	Gravel content	1.00
						Slope	0.50
						Depth to bedrock	0.06
Weikert	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel content	0.99	Gravel content	0.99	Gravel content	1.00
						Slope	0.50
Du:							
Dunning	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	0.99	Slow water movement	0.99
		Slow water movement	0.99				
EwB:							
Etowah	90	Not limited		Not limited		Somewhat limited	
						Slope	0.50
EwC:							
Etowah	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
FkB:							
Frankstown----------	90	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
						Slope	0.50
FkC2:							
Frankstown----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
FkD2:							
Frankstown----------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
FrB2:							
Frederick-----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99
						Slope	0.50
FrC2:							
Frederick-----------	85	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.99	Slow water movement	0.99	Slope	1.00
		Slope	0.04	Slope	0.04	Slow water movement	0.99
FrD2:							
Frederick-----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99
FvE:							
Frederick-----------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99
Caneyville----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99
						Depth to bedrock	0.46
GaF:							
Garmon--------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
						Depth to bedrock	0.84
GpB:							
Gilpin--------------	85	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
						Depth to bedrock	0.90
						Slope	0.50

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
GpC:							
Gilpin	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
						Depth to bedrock	0.90
GpD:							
Gilpin	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
						Depth to bedrock	0.90
Jo:							
Johnsburg	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
		Depth to cemented pan	0.16	Depth to cemented pan	0.16		
La:							
Lawrence	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
Ld:							
Lindside	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.48	Depth to saturated zone	0.81
		Depth to saturated zone	0.81			Flooding	0.60
LoB:							
Lonewood	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50
LoC:							
Lonewood	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
Me:							
Melvin	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
Mp:							
Melvin	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
NeB:							
Needmore	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99
						Depth to bedrock	0.90
						Slope	0.50

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NeC2:							
Needmore------------	85	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.99	Slow water movement	0.99	Slope	1.00
		Slope	0.04	Slope	0.04	Slow water movement	0.99
						Depth to bedrock	0.29
NeD3:							
Needmore------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99
						Depth to bedrock	0.97
NfD:							
Needmore------------	80	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.99	Slow water movement	0.99	Slope	1.00
		Slope	0.96	Slope	0.96	Slow water movement	0.99
						Depth to bedrock	0.90
Nk:							
Newark--------------	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
No:							
Nolin---------------	85	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
OtA:							
Otwood--------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
OtB:							
Otwood--------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
						Depth to saturated zone	0.39
OtC2:							
Otwood--------------	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.83	Depth to saturated zone	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
Pq:							
Pits, quarry--------	100	Not rated		Not rated		Not rated	
PrB:							
Pricetown-----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.49	Slow water movement	0.49	Slope	0.50
						Slow water movement	0.49

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
PrC:							
Pricetown	85	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.49	Slow water movement	0.49	Slope	1.00
		Slope	0.04	Slope	0.04	Slow water movement	0.49
RnB:							
Riney	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50
RnC:							
Riney	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
Ro:							
Robertsville	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00				
RpD:							
Rock outcrop	65	Not rated		Not rated		Not rated	
Caneyville	25	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.99	Slow water movement	0.99	Slope	1.00
		Slope	0.63	Slope	0.63	Slow water movement	0.99
						Depth to bedrock	0.46
						Gravel content	0.08
RsF:							
Rohan	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel content	0.99	Gravel content	0.99	Gravel content	1.00
Sa:							
Sano	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
		Depth to saturated zone	0.81	Depth to saturated zone	0.48	Depth to saturated zone	0.81
						Slope	0.03
Sk:							
Skidmore	85	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Gravel content	0.74	Flooding	1.00
		Gravel content	0.74	Flooding	0.40	Gravel content	1.00
TaB:							
Tarklin	80	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.74	Gravel content	0.74	Gravel content	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
						Depth to saturated zone	0.39

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
TaC:							
Tarklin	85	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.74	Gravel content	0.74	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Gravel content	1.00
		Slope	0.04	Slope	0.04	Depth to saturated zone	0.39
TeB:							
Teddy	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.56	Depth to saturated zone	0.28	Depth to saturated zone	0.56
						Slope	0.50
Ud:							
Udarents	60	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
Ur:							
Urban land	80	Not rated		Not rated		Not rated	
Us:							
Urban land	50	Not rated		Not rated		Not rated	
Frederick	20	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.99	Slow water movement	0.99	Slope	1.00
		Slope	0.37	Slope	0.37	Slow water movement	0.99
						Gravel content	0.44
Pricetown	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
Uw:							
Urban land	50	Not rated		Not rated		Not rated	
Weikert	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Slope	0.37	Slope	0.37	Slope	1.00
		Gravel content	0.17	Gravel content	0.17	Depth to bedrock	1.00
Culleoka	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
						Gravel content	0.87
						Depth to bedrock	0.06
W:							
Water	100	Not rated		Not rated		Not rated	
WcC:							
Weikert	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel content	0.17	Gravel content	0.17	Depth to bedrock	1.00
		Slope	0.04	Slope	0.04	Gravel content	1.00

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
WcC:							
Culleoka------------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
		Large stones content	0.01	Large stones content	0.01	Depth to bedrock	0.99
						Gravel content	0.95
						Large stones content	0.01
WcD:							
Weikert-------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel content	0.17	Gravel content	0.17	Gravel content	1.00
Culleoka------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.01	Large stones content	0.01	Depth to bedrock	0.99
						Gravel content	0.95
						Large stones content	0.01
Yo:							
Yosemite------------	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Gravel content	1.00
		Flooding	1.00	Flooding	0.40	Depth to saturated zone	1.00
		Gravel content	0.32	Gravel content	0.32	Flooding	1.00

Table 10.—Recreational Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CaC:							
Carpenter-----------	85	Not limited		Not limited		Somewhat limited	
						Gravel content	0.20
						Slope	0.04
CbE:							
Carpenter-----------	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.01	Slope	1.00
						Gravel content	0.20
Lenberg-------------	35	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.01	Depth to bedrock	0.58
Cg:							
Chagrin-------------	85	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
CwB:							
Culleoka------------	55	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.06
						Gravel content	0.05
Weikert-------------	35	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	0.99
Du:							
Dunning-------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
EwB:							
Etowah--------------	90	Not limited		Not limited		Not limited	
EwC:							
Etowah--------------	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.04
FkB:							
Frankstown----------	90	Not limited		Not limited		Somewhat limited	
						Gravel content	0.01
FkC2:							
Frankstown----------	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.04
						Gravel content	0.01
FkD2:							
Frankstown----------	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.02			Gravel content	0.01

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
FrB2:							
Frederick-----------	90	Not limited		Not limited		Not limited	
FrC2:							
Frederick-----------	85	Not limited		Not limited		Somewhat limited	
						Slope	0.04
FrD2:							
Frederick-----------	85	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
FvE:							
Frederick-----------	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
Caneyville----------	20	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.22	Depth to bedrock	0.46
GaF:							
Garmon--------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.84
						Droughty	0.83
						Gravel content	0.01
GpB:							
Gilpin--------------	85	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.90
						Droughty	0.19
						Gravel content	0.01
GpC:							
Gilpin--------------	85	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.90
						Droughty	0.19
						Slope	0.04
						Gravel content	0.01
GpD:							
Gilpin--------------	80	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.90
						Droughty	0.19
						Gravel content	0.01
Jo:							
Johnsburg-----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
						Depth to cemented pan	0.15
La:							
Lawrence------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
Ld:							
Lindside------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Flooding	0.60
						Depth to saturated zone	0.48
LoB:							
Lonewood------------	85	Not limited		Not limited		Not limited	
LoC:							
Lonewood------------	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.04
Me:							
Melvin--------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
Mp:							
Melvin--------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
NeB:							
Needmore------------	85	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.90
						Droughty	0.85
NeC2:							
Needmore------------	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Depth to bedrock	0.29
						Slope	0.04
NeD3:							
Needmore------------	80	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.02			Droughty	0.99
						Depth to bedrock	0.97
NfD:							
Needmore------------	80	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
						Depth to bedrock	0.90
						Droughty	0.86
Nk:							
Newark--------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
						Flooding	0.60
No:							
Nolin---------------	85	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
OtA:							
Otwood--------------	85	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
OtB:							
Otwood	85	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
OtC2:							
Otwood	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Depth to saturated zone	0.83
		Depth to saturated zone	0.62	Depth to saturated zone	0.62	Slope	0.04
Pq:							
Pits, quarry	100	Not rated		Not rated		Not rated	
PrB:							
Pricetown	85	Not limited		Not limited		Not limited	
PrC:							
Pricetown	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.04
RnB:							
Riney	85	Not limited		Not limited		Not limited	
RnC:							
Riney	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.04
Ro:							
Robertsville	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Droughty	0.22
RpD:							
Rock outcrop	65	Not rated		Not rated		Not rated	
Caneyville	25	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
						Depth to bedrock	0.46
RsF:							
Rohan	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	1.00
						Depth to bedrock	1.00
						Gravel content	0.99
Sa:							
Sano	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
Sk:							
Skidmore	85	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
						Droughty	0.81
						Gravel content	0.74

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
TaB:							
Tarklin	80	Not limited		Not limited		Somewhat limited	
						Gravel content	0.74
						Droughty	0.29
						Depth to saturated zone	0.19
TaC:							
Tarklin	85	Not limited		Not limited		Somewhat limited	
						Gravel content	0.74
						Droughty	0.29
						Depth to saturated zone	0.19
						Slope	0.04
TeB:							
Teddy	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.01	Depth to saturated zone	0.01	Depth to saturated zone	0.28
Ud:							
Udarents	60	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
Ur:							
Urban land	80	Not rated		Not rated		Not rated	
Us:							
Urban land	50	Not rated		Not rated		Not rated	
Frederick	20	Not limited		Not limited		Somewhat limited	
						Slope	0.37
Pricetown	20	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
Uw:							
Urban land	50	Not rated		Not rated		Not rated	
Weikert	20	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.37
						Gravel content	0.17
Culleoka	20	Not limited		Not limited		Somewhat limited	
						Slope	0.37
						Depth to bedrock	0.06
						Large stones content	0.03
W:							
Water	100	Not rated		Not rated		Not rated	
WcC:							
Weikert	55	Not limited		Not limited		Very limited	
						Droughty	1.00
						Depth to bedrock	1.00
						Gravel content	0.17
						Slope	0.04

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
WcC:							
Culleoka	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones content	0.01	Large stones content	0.01	Depth to bedrock	0.99
						Large stones content	0.97
						Droughty	0.43
						Slope	0.04
WcD:							
Weikert	55	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Droughty	1.00
						Depth to bedrock	1.00
						Slope	1.00
						Gravel content	0.17
Culleoka	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.02	Large stones content	0.01	Slope	1.00
		Large stones content	0.01			Depth to bedrock	0.99
						Large stones content	0.97
						Droughty	0.43
Yo:							
Yosemite	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.94
						Gravel content	0.32
						Droughty	0.32

Table 11.—Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
CaC:										
Carpenter	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CbE:										
Carpenter	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Lenberg	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor
Cg:										
Chagrin	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CwB:										
Culleoka	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Weikert	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Du:										
Dunning	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
EwB:										
Etowah	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
EwC:										
Etowah	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
FkB:										
Frankstown	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
FkC2:										
Frankstown	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
FkD2:										
Frankstown	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
FrB2:										
Frederick	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FrC2:										
Frederick	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 11.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life
FrD2:										
Frederick----------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
FvE:										
Frederick----------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Caneyville---------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
GaF:										
Garmon-------------	Very poor	Poor	Good	Good	Fair	Very poor	Very poor	Poor	Fair	Very poor
GpB:										
Gilpin-------------	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
GpC:										
Gilpin-------------	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
GpD:										
Gilpin-------------	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Jo:										
Johnsburg----------	Fair	Good	Good	Good	Poor	Fair	Fair	Good	Good	Fair
La:										
Lawrence-----------	Fair	Good	Good	Good	Poor	Fair	Fair	Good	Good	Fair
Ld:										
Lindside-----------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LoB:										
Lonewood-----------	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
LoC:										
Lonewood-----------	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Me:										
Melvin-------------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good
Mp:										
Melvin-------------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good
NeB:										
Needmore-----------	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
NeC2:										
Needmore-----------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 11.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
NeD3: Needmore	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
NfD: Needmore	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Nk: Newark	Poor	Fair	Fair	Good	Fair	Fair	Fair	Fair	Good	Fair
No: Nolin	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
OtA: Otwood	Fair	Fair	Fair	Fair	Poor	Fair	Poor	Fair	Good	Poor
OtB: Otwood	Fair	Fair	Fair	Fair	Poor	Fair	Poor	Fair	Good	Poor
OtC2: Otwood	Fair	Fair	Fair	Fair	Poor	Fair	Poor	Fair	Good	Poor
Pq. Pits, quarry										
PrB: Pricetown	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
PrC: Pricetown	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
RnB: Riney	Good	Good	Good	Good	Fair	Very poor	Very poor	Good	Good	Very poor
RnC: Riney	Good	Good	Good	Good	Fair	Very poor	Very poor	Good	Good	Very poor
Ro: Robertsville	Poor	Fair	Fair	Fair	Poor	Good	Good	Poor	Fair	Good
RpD: Rock outcrop.										
Caneyville	Very poor	Poor	Poor	Poor	Poor	Very poor	Very poor	Poor	Fair	Very poor
RsF: Rohan	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor
Sa: Sano	Fair	Good	Good	Good	Poor	Poor	Poor	Good	Good	Poor

Table 11.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Sk:										
Skidmore	Fair	Good	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor
TaB:										
Tarklin	Fair	Good	Good	Good	Poor	Poor	Very poor	Good	Good	Very poor
TaC:										
Tarklin	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
TeB:										
Teddy	Fair	Good	Good	Good	Poor	Poor	Very poor	Good	Good	Very poor
Ud. Udarents-Urban land										
Ur. Urban land										
Us:										
Urban land.										
Frederick	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Pricetown	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Uw. Urban land-Weikert-Culleoka										
W. Water										
WcC:										
Weikert	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Culleoka	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
WcD:										
Weikert	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Culleoka	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Yo:										
Yosemite	Poor	Fair	Fair	Good	Fair	Fair	Fair	Fair	Good	Fair

Table 12.—Building Site Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
CaC:							
Carpenter-----------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
CbE:							
Carpenter-----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Lenberg-------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.86	Shrink-swell	0.86	Shrink-swell	0.86
				Depth to soft bedrock	0.57		
Cg:							
Chagrin-------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
CwB:							
Culleoka------------	55	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.06	Depth to hard bedrock	1.00	Depth to hard bedrock	0.06
Weikert-------------	35	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.84	Depth to hard bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to hard bedrock	0.84
Du:							
Dunning-------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
EwB:							
Etowah--------------	90	Not limited		Not limited		Not limited	
EwC:							
Etowah--------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
FkB:							
Frankstown----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FkC2:							
Frankstown----------	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.04	Slope	0.04	Shrink-swell	0.50

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
FkD2:							
Frankstown	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FrB2:							
Frederick	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FrC2:							
Frederick	85	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.04	Slope	0.04	Shrink-swell	0.50
FrD2:							
Frederick	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FvE:							
Frederick	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Caneyville	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.46	Shrink-swell	0.50	Depth to hard bedrock	0.46
GaF:							
Garmon	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.84	Depth to hard bedrock	1.00	Depth to hard bedrock	0.84
GpB:							
Gilpin	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
				Depth to soft bedrock	0.90		
GpC:							
Gilpin	85	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.04	Depth to soft bedrock	0.90	Depth to hard bedrock	0.64
				Slope	0.04		
GpD:							
Gilpin	80	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Slope	1.00	Depth to hard bedrock	0.64
				Depth to soft bedrock	0.90		

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
Jo:							
Johnsburg-----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to thick cemented pan	0.16	Depth to thick cemented pan	1.00	Depth to thick cemented pan	0.16
La:							
Lawrence------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.50		
Ld:							
Lindside------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
LoB:							
Lonewood------------	85	Not limited		Not limited		Not limited	
LoC:							
Lonewood------------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
Me:							
Melvin--------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Mp:							
Melvin--------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
NeB:							
Needmore------------	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.90		
NeC2:							
Needmore------------	85	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.04	Depth to soft bedrock	0.29	Shrink-swell	0.50
				Slope	0.04		
NeD3:							
Needmore------------	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.97		

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
NfD:							
Needmore	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.96	Slope	0.96	Slope	1.00
				Depth to soft bedrock	0.90		
Nk:							
Newark	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
No:							
Nolin	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
OtA:							
Otwood	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
				Shrink-swell	0.50		
OtB:							
Otwood	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
				Shrink-swell	0.50		
OtC2:							
Otwood	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.04	Slope	0.04	Shrink-swell	0.50
Pq:							
Pits, quarry	100	Not rated		Not rated		Not rated	
PrB:							
Pricetown	85	Not limited		Somewhat limited		Not limited	
				Shrink-swell	0.50		
PrC:							
Pricetown	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Shrink-swell	0.50	Slope	1.00
				Slope	0.04		
RnB:							
Riney	85	Not limited		Not limited		Not limited	
RnC:							
Riney	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
Ro:							
Robertsville	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.50		

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
RpD:							
Rock outcrop	65	Not rated		Not rated		Not rated	
Caneyville	25	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Depth to hard bedrock	1.00	Slope	1.00
		Shrink-swell	0.50	Slope	0.63	Shrink-swell	0.50
		Depth to hard bedrock	0.46	Shrink-swell	0.50	Depth to hard bedrock	0.46
RsF:							
Rohan	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Sa:							
Sano	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
Sk:							
Skidmore	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.35		
TaB:							
Tarklin	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
TaC:							
Tarklin	85	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to saturated zone	0.30
TeB:							
Teddy	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.56	Depth to saturated zone	1.00	Depth to saturated zone	0.56
Ud:							
Udarents	60	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
Ur:							
Urban land	80	Not rated		Not rated		Not rated	
Us:							
Urban land	50	Not rated		Not rated		Not rated	
Frederick	20	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.37	Slope	0.37	Shrink-swell	0.50
Pricetown	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Shrink-swell	0.50	Slope	1.00
				Slope	0.37		

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
Uw:							
Urban land	50	Not rated		Not rated		Not rated	
Weikert	20	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.84	Depth to hard bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to hard bedrock	0.84
Culleoka	20	Somewhat limited		Very limited		Very limited	
		Slope	0.37	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.06	Slope	0.37	Depth to hard bedrock	0.06
W:							
Water	100	Not rated		Not rated		Not rated	
WcC:							
Weikert	55	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.86	Depth to hard bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to hard bedrock	0.86
Culleoka	35	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.99	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to hard bedrock	0.99
WcD:							
Weikert	55	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.84	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Slope	1.00	Depth to hard bedrock	0.84
Culleoka	35	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.99	Slope	1.00	Depth to hard bedrock	0.99
Yo:							
Yosemite	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 12.—Building Site Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CaC:							
Carpenter	85	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.04	Cutbanks cave	1.00	Gravel content	0.20
				Too clayey	0.04	Slope	0.04
				Slope	0.04		
CbE:							
Carpenter	45	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Slope	1.00
				Slope	1.00	Gravel content	0.20
				Too clayey	0.04		
Lenberg	35	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Too clayey	0.98	Depth to bedrock	0.58
		Shrink-swell	0.86	Depth to soft bedrock	0.57		
				Cutbanks cave	0.10		
Cg:							
Chagrin	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
				Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
CwB:							
Culleoka	55	Somewhat limited		Very limited		Somewhat limited	
		Low strength	0.22	Depth to hard bedrock	1.00	Depth to bedrock	0.06
		Depth to hard bedrock	0.06	Cutbanks cave	0.10	Gravel content	0.05
Weikert	35	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Gravel content	1.00
		Depth to hard bedrock	0.84	Depth to soft bedrock	1.00		0.99
Du:							
Dunning	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.32		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Flooding	0.40				
EwB:							
Etowah	90	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.22	Cutbanks cave	0.10		
EwC:							
Etowah	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Low strength	0.22	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
FkB:							
Frankstown----------	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	1.00	Gravel content	0.01
		Shrink-swell	0.50				
FkC2:							
Frankstown----------	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	1.00	Slope	0.04
		Shrink-swell	0.50	Slope	0.04	Gravel content	0.01
		Slope	0.04				
FkD2:							
Frankstown----------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Gravel content	0.01
		Shrink-swell	0.50				
FrB2:							
Frederick-----------	90	Very limited		Very limited		Not limited	
		Low strength	1.00	Too clayey	1.00		
		Shrink-swell	0.50	Cutbanks cave	0.10		
FrC2:							
Frederick-----------	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Too clayey	1.00	Slope	0.04
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Slope	0.04	Slope	0.04		
FrD2:							
Frederick-----------	85	Very limited		Very limited		Very limited	
		Low strength	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Too clayey	1.00		
		Shrink-swell	0.50	Cutbanks cave	0.10		
FvE:							
Frederick-----------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	1.00		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Caneyville----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00			Depth to bedrock	0.46
		Shrink-swell	0.50	Slope	1.00		
		Depth to hard bedrock	0.46	Too clayey	0.99		
				Cutbanks cave	0.10		
GaF:							
Garmon--------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.84			Depth to bedrock	0.84
				Slope	1.00	Droughty	0.83
				Cutbanks cave	0.10	Gravel content	0.01

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
GpB:							
Gilpin	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.90
		Depth to hard bedrock	0.64	Depth to soft bedrock	0.90	Droughty	0.19
				Cutbanks cave	0.10	Gravel content	0.01
GpC:							
Gilpin	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.90
		Depth to hard bedrock	0.64	Depth to soft bedrock	0.90	Droughty	0.19
		Slope	0.04	Cutbanks cave	0.10	Slope	0.04
				Slope	0.04	Gravel content	0.01
GpD:							
Gilpin	80	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to bedrock	0.90
		Depth to hard bedrock	0.64	Depth to soft bedrock	0.90	Droughty	0.19
				Cutbanks cave	0.10	Gravel content	0.01
Jo:							
Johnsburg	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to thick cemented pan	1.00	Depth to saturated zone	0.94
		Depth to saturated zone	0.94	Depth to saturated zone	1.00	Depth to cemented pan	0.15
		Depth to thick cemented pan	0.16	Cutbanks cave	0.10		
La:							
Lawrence	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
		Depth to saturated zone	0.94	Cutbanks cave	0.10		
Ld:							
Lindside	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Low strength	1.00	Flooding	0.60	Depth to saturated zone	0.48
		Depth to saturated zone	0.48	Cutbanks cave	0.10		
LoB:							
Lonewood	85	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
LoC:							
Lonewood	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
Me:							
Melvin	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
Mp:							
Melvin	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
NeB:							
Needmore	85	Very limited		Somewhat limited		Somewhat limited	
		Shrink-swell	1.00	Depth to soft bedrock	0.90	Depth to bedrock	0.90
		Low strength	1.00	Too clayey	0.41	Droughty	0.85
				Cutbanks cave	0.10		
NeC2:							
Needmore	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.41	Depth to bedrock	0.29
		Shrink-swell	0.50	Depth to soft bedrock	0.29	Slope	0.04
		Slope	0.04	Cutbanks cave	0.10		
				Slope	0.04		
NeD3:							
Needmore	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.97	Droughty	0.99
		Low strength	1.00	Too clayey	0.82	Depth to bedrock	0.97
				Cutbanks cave	0.10		
NfD:							
Needmore	80	Very limited		Somewhat limited		Somewhat limited	
		Shrink-swell	1.00	Slope	0.96	Slope	0.96
		Low strength	1.00	Depth to soft bedrock	0.90	Depth to bedrock	0.90
		Slope	0.96	Too clayey	0.41	Droughty	0.86
				Cutbanks cave	0.10		
Nk:							
Newark	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
		Low strength	1.00	Flooding	0.60	Flooding	0.60
		Depth to saturated zone	0.94	Cutbanks cave	0.10		
No:							
Nolin	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
OtA:							
Otwood	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
OtB:							
Otwood	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
OtC2:							
Otwood	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.83
		Depth to saturated zone	0.83	Cutbanks cave	0.10	Slope	0.04
		Shrink-swell	0.50	Slope	0.04		
		Slope	0.04				
Pq:							
Pits, quarry	100	Not rated		Not rated		Not rated	
PrB:							
Pricetown	85	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
				Too clayey	0.01		
PrC:							
Pricetown	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		
				Too clayey	0.01		
RnB:							
Riney	85	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
RnC:							
Riney	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		
Ro:							
Robertsville	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	0.22
		Flooding	0.40				
RpD:							
Rock outcrop	65	Not rated		Not rated		Not rated	
Caneyville	25	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Slope	0.63
		Slope	0.63	Too clayey	0.99	Depth to bedrock	0.46
		Shrink-swell	0.50	Slope	0.63		
		Depth to hard bedrock	0.46	Cutbanks cave	0.10		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
RsF:							
Rohan	90	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
						Droughty	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Gravel content	0.99
Sa:							
Sano	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.48
		Depth to saturated zone	0.48	Cutbanks cave	0.10		
Sk:							
Skidmore	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
				Flooding	0.80	Droughty	0.81
				Depth to saturated zone	0.35	Gravel content	0.74
TaB:							
Tarklin	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Gravel content	0.74
						Droughty	0.29
				Cutbanks cave	1.00	Depth to saturated zone	0.19
TaC:							
Tarklin	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Gravel content	0.74
						Droughty	0.29
		Slope	0.04	Cutbanks cave	1.00	Depth to saturated zone	0.19
				Slope	0.04		
						Slope	0.04
TeB:							
Teddy	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.28
		Depth to saturated zone	0.28	Cutbanks cave	0.10		
Ud:							
Udarents	60	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
Ur:							
Urban land	80	Not rated		Not rated		Not rated	
Us:							
Urban land	50	Not rated		Not rated		Not rated	
Frederick	20	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Too clayey	1.00	Slope	0.37
		Shrink-swell	0.50	Slope	0.37		
		Slope	0.37	Cutbanks cave	0.10		
Pricetown	20	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
				Too clayey	0.01		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Uw:							
Urban land	50	Not rated		Not rated		Not rated	
Weikert	20	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Depth to hard bedrock	0.84	Depth to soft bedrock	1.00	Droughty	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
						Gravel content	0.17
						Slope	
Culleoka	20	Somewhat limited		Very limited		Somewhat limited	
		Low strength	0.78	Depth to hard bedrock	1.00	Slope	0.37
		Slope	0.37	Slope	0.37	Depth to bedrock	0.06
		Depth to hard bedrock	0.06	Cutbanks cave	0.10	Large stones content	0.03
W:							
Water	100	Not rated		Not rated		Not rated	
WcC:							
Weikert	55	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to hard bedrock	1.00	Droughty	1.00
		Depth to hard bedrock	0.86	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Slope	0.04	Gravel content	0.17
						Slope	0.04
Culleoka	35	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.99	Depth to hard bedrock	1.00	Depth to bedrock	0.99
		Low strength	0.22	Cutbanks cave	0.10	Large stones content	0.97
		Slope	0.04	Slope	0.04	Droughty	0.43
						Slope	0.04
WcD:							
Weikert	55	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to hard bedrock	1.00	Droughty	1.00
		Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Depth to hard bedrock	0.84	Slope	1.00	Slope	1.00
						Gravel content	0.17
Culleoka	35	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.99	Slope	1.00	Depth to bedrock	0.99
		Low strength	0.22	Cutbanks cave	0.10	Large stones content	0.97
						Droughty	0.43
Yo:							
Yosemite	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	0.94	Cutbanks cave	1.00	Depth to saturated zone	0.94
				Flooding	0.80	Gravel content	0.32
						Droughty	0.32

Table 13.—Sanitary Facilities, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
CaC:					
Carpenter	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to bedrock	0.47	Seepage	0.53
		Slope	0.04	Depth to soft bedrock	0.05
CbE:					
Carpenter	45	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Seepage	0.53
		Depth to bedrock	0.47	Depth to soft bedrock	0.05
Lenberg	35	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
Cg:					
Chagrin	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	0.46	Seepage	0.53
		Depth to saturated zone	0.40		
CwB:					
Culleoka	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.32
Weikert	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Depth to soft bedrock	1.00
				Seepage	1.00
				Slope	0.32
Du:					
Dunning	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40
		Flooding	0.40		

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
EwB:					
Etowah	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.46	Seepage	0.53
				Slope	0.32
EwC:					
Etowah	90	Somewhat limited		Very limited	
		Slow water movement	0.46	Slope	1.00
				Seepage	0.53
		Slope	0.04		
FkB:					
Frankstown	90	Somewhat limited		Somewhat limited	
		Depth to bedrock	0.99	Depth to soft bedrock	0.96
		Slow water movement	0.46		
				Seepage	0.53
				Slope	0.32
FkC2:					
Frankstown	90	Somewhat limited		Very limited	
		Depth to bedrock	0.99	Slope	1.00
		Slow water movement	0.46	Depth to soft bedrock	0.96
		Slope	0.04	Seepage	0.53
FkD2:					
Frankstown	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.99	Depth to soft bedrock	0.96
		Slow water movement	0.46		
				Seepage	0.53
FrB2:					
Frederick	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.32
FrC2:					
Frederick	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.04		
FrD2:					
Frederick	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
FvE:					
Frederick	70	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
Caneyville	20	Very limited		Very limited	
		Slow water movement	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Depth to bedrock	1.00		

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
GaF:					
Garmon--------------	85	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
GpB:					
Gilpin--------------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	0.46	Depth to soft bedrock	1.00
				Seepage	0.53
				Slope	0.32
GpC:					
Gilpin--------------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	0.46	Depth to soft bedrock	1.00
		Slope	0.04	Slope	1.00
				Seepage	0.53
GpD:					
Gilpin--------------	80	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.46	Slope	1.00
				Seepage	0.53
Jo:					
Johnsburg-----------	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to cemented pan	1.00
		Depth to cemented pan	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
La:					
Lawrence------------	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
Ld:					
Lindside------------	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.72	Seepage	0.28

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
LoB:					
Lonewood	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.46	Slope	0.32
		Depth to bedrock	0.30		
LoC:					
Lonewood	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	1.00
		Depth to bedrock	0.30		
		Slope	0.04		
Me:					
Melvin	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.72	Seepage	0.53
Mp:					
Melvin	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Slow water movement	0.72	Seepage	0.53
NeB:					
Needmore	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	0.32
NeC2:					
Needmore	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.04		
NeD3:					
Needmore	80	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
NfD:					
Needmore	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.96		

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
Nk:					
Newark	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.46	Seepage	0.53
No:					
Nolin	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	0.46	Seepage	0.53
OtA:					
Otwood	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Seepage	0.53
OtB:					
Otwood	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.32
OtC2:					
Otwood	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.04	Seepage	0.53
Pq:					
Pits, quarry	100	Not rated		Not rated	
PrB:					
Pricetown	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.53
				Slope	0.32
PrC:					
Pricetown	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.04	Seepage	0.53
RnB:					
Riney	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
		Slow water movement	0.46	Slope	0.32

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
RnC:					
Riney	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.78	Slope	1.00
		Slow water movement	0.46	Depth to soft bedrock	0.42
		Slope	0.04		
Ro:					
Robertsville	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
		Flooding	0.40	Flooding	0.40
RpD:					
Rock outcrop	65	Not rated		Not rated	
Caneyville	25	Very limited		Very limited	
		Slow water movement	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.63		
RsF:					
Rohan	90	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Sa:					
Sano	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.94
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.02
Sk:					
Skidmore	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.17
		Depth to saturated zone	0.84		
TaB:					
Tarklin	80	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.75
				Slope	0.32

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
TaC:					
Tarklin----------------	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Slope	0.04		
TeB:					
Teddy------------------	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.83
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.32
Ud:					
Udarents---------------	60	Not rated		Not rated	
Urban land-------------	40	Not rated		Not rated	
Ur:					
Urban land-------------	80	Not rated		Not rated	
Us:					
Urban land-------------	50	Not rated		Not rated	
Frederick--------------	20	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.37		
Pricetown--------------	20	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Seepage	0.53
		Slope	0.37		
Uw:					
Urban land-------------	50	Not rated		Not rated	
Weikert----------------	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00		
				Depth to soft bedrock	1.00
		Slope	0.37		
				Seepage	1.00
				Slope	1.00
Culleoka---------------	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00		
				Seepage	1.00
		Slope	0.37	Slope	1.00
W:					
Water------------------	100	Not rated		Not rated	

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
WcC:					
Weikert	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Depth to soft bedrock	1.00
		Slope	0.04	Seepage	1.00
				Slope	1.00
Culleoka	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.04	Seepage	1.00
WcD:					
Weikert	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
Culleoka	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Yo:					
Yosemite	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		

Table 13.—Sanitary Facilities, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CaC:							
Carpenter-----------	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	0.05	Too clayey	0.50
		Too clayey	0.50	Slope	0.04	Depth to bedrock	0.05
		Slope	0.04			Slope	0.04
CbE:							
Carpenter-----------	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	0.05	Too clayey	0.50
		Too clayey	0.50			Depth to bedrock	0.05
Lenberg-------------	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	1.00	Hard to compact	1.00
		Slope	1.00			Depth to bedrock	1.00
						Slope	1.00
Cg:							
Chagrin-------------	85	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
CwB:							
Culleoka------------	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.22
						Gravel content	0.04
Weikert-------------	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00			Gravel content	1.00
						Seepage	0.50
Du:							
Dunning-------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00
		Flooding	0.40			Hard to compact	1.00
EwB:							
Etowah--------------	90	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
EwC:							
Etowah--------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
FkB:							
Frankstown----------	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	0.96	Depth to bedrock	0.96
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.05
FkC2:							
Frankstown----------	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	0.96	Depth to bedrock	0.96
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Gravel content	0.05
						Slope	0.04
FkD2:							
Frankstown----------	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	0.96	Depth to bedrock	0.96
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.05
FrB2:							
Frederick-----------	90	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
FrC2:							
Frederick-----------	85	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.04	Too clayey	1.00
		Slope	0.04			Hard to compact	1.00
						Slope	0.04
FrD2:							
Frederick-----------	85	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Hard to compact	1.00
						Slope	1.00
FvE:							
Frederick-----------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Caneyville----------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00
GaF:							
Garmon--------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Seepage	0.52
						Gravel content	0.42

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
GpB:							
Gilpin	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.10
GpC:							
Gilpin	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Gravel content	0.10
						Slope	0.04
GpD:							
Gilpin	80	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.10
Jo:							
Johnsburg	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to bedrock	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to thick cemented pan	1.00				
La:							
Lawrence	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50				
Ld:							
Lindside	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.96
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
LoB:							
Lonewood	85	Very limited		Not limited		Somewhat limited	
		Depth to bedrock	1.00			Too clayey	0.50
		Seepage, bottom layer	1.00				
		Too clayey	0.50				
LoC:							
Lonewood	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.04	Too clayey	0.50
		Seepage, bottom layer	1.00			Slope	0.04
		Too clayey	0.50				
		Slope	0.04				
Me:							
Melvin	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
Mp:							
Melvin	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
NeB:							
Needmore	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00
NeC2:							
Needmore	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.04	Hard to compact	1.00
		Slope	0.04			Depth to bedrock	1.00
						Slope	0.04
NeD3:							
Needmore	80	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	1.00	Hard to compact	1.00
		Slope	1.00			Depth to bedrock	1.00
						Slope	1.00
NfD:							
Needmore	80	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.96	Hard to compact	1.00
		Slope	0.96			Depth to bedrock	1.00
						Slope	0.96
Nk:							
Newark	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
No:							
Nolin	85	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
OtA:							
Otwood	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
OtB:							
Otwood	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
OtC2:							
Otwood	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pq:							
Pits, quarry	100	Not rated		Not rated		Not rated	
PrB:							
Pricetown	85	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
PrC:							
Pricetown	85	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.04	Too clayey	1.00
		Slope	0.04			Hard to compact	1.00
						Slope	0.04
RnB:							
Riney	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	0.42	Too clayey	0.50
		Seepage, bottom layer	1.00			Depth to bedrock	0.42
		Too clayey	0.50				
RnC:							
Riney	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	0.42	Too clayey	0.50
		Seepage, bottom layer	1.00	Slope	0.04	Depth to bedrock	0.42
		Too clayey	0.50			Slope	0.04
		Slope	0.04				
Ro:							
Robertsville	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40		
		Flooding	0.40				
RpD:							
Rock outcrop	65	Not rated		Not rated		Not rated	
Caneyville	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Hard to compact	1.00
		Slope	0.63			Depth to bedrock	1.00
						Slope	0.63
RsF:							
Rohan	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Gravel content	1.00
		Too clayey	0.50			Seepage	0.50
						Too clayey	0.50
Sa:							
Sano	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	0.96

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sk:							
Skidmore	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
TaB:							
Tarklin	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00	Gravel content	1.00
				Depth to saturated zone	0.75	Depth to saturated zone	0.86
TaC:							
Tarklin	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00	Gravel content	1.00
		Slope	0.04	Depth to saturated zone	0.75	Depth to saturated zone	0.86
				Slope	0.04	Slope	0.04
TeB:							
Teddy	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.83	Depth to saturated zone	0.91
		Too clayey	0.50			Too clayey	0.50
Ud:							
Udarents	60	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
Ur:							
Urban land	80	Not rated		Not rated		Not rated	
Us:							
Urban land	50	Not rated		Not rated		Not rated	
Frederick	20	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.37	Too clayey	1.00
		Slope	0.37			Hard to compact	1.00
						Slope	0.37
Pricetown	20	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.37	Too clayey	1.00
		Slope	0.37			Hard to compact	1.00
						Slope	0.37
Uw:							
Urban land	50	Not rated		Not rated		Not rated	
Weikert	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Slope	0.37	Gravel content	0.84
		Slope	0.37			Seepage	0.50
						Slope	0.37

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
Uw:							
Culleoka------------	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Slope	0.37
		Slope	0.37	Slope	0.37	Seepage	0.22
W:							
Water---------------	100	Not rated		Not rated		Not rated	
WcC:							
Weikert-------------	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Slope	0.04	Gravel content	0.84
		Slope	0.04			Seepage	0.50
						Slope	0.04
Culleoka------------	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50	Slope	0.04	Gravel content	0.39
		Slope	0.04			Seepage	0.22
						Slope	0.04
WcD:							
Weikert-------------	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Gravel content	0.84
						Seepage	0.50
Culleoka------------	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50			Gravel content	0.39
						Seepage	0.22
Yo:							
Yosemite------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	1.00

Table 14.—Construction Materials, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
CaC:					
Carpenter	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CbE:					
Carpenter	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lenberg	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cg:					
Chagrin	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
CwB:					
Culleoka	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Weikert	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Du:					
Dunning	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
EwB:					
Etowah	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
EwC:					
Etowah	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
FkB:					
Frankstown	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
FkC2:					
Frankstown	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
FkD2:					
Frankstown----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
FrB2:					
Frederick-----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
FrC2:					
Frederick-----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
FrD2:					
Frederick-----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
FvE:					
Frederick-----------	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Caneyville----------	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GaF:					
Garmon--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GpB:					
Gilpin--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GpC:					
Gilpin--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GpD:					
Gilpin--------------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Jo:					
Johnsburg-----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
La:					
Lawrence------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Ld:					
Lindside------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LoB:					
Lonewood------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LoC:					
Lonewood------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Me:					
Melvin--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Mp:					
Melvin--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NeB:					
Needmore------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NeC2:					
Needmore------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NeD3:					
Needmore------------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NfD:					
Needmore------------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Nk:					
Newark--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
No:					
Nolin---------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
OtA:					
Otwood--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
OtB:					
Otwood----------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
OtC2:					
Otwood----------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Pq:					
Pits, quarry--------	100	Not rated		Not rated	
PrB:					
Pricetown-----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
PrC:					
Pricetown-----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
RnB:					
Riney---------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
RnC:					
Riney---------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ro:					
Robertsville--------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
RpD:					
Rock outcrop--------	65	Not rated		Not rated	
Caneyville----------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
RsF:					
Rohan---------------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Sa:					
Sano----------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Sk:					
Skidmore------------	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.07

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
TaB:					
Tarklin-------------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
TaC:					
Tarklin-------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
TeB:					
Teddy---------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ud:					
Udarents------------	60	Not rated		Not rated	
Urban land----------	40	Not rated		Not rated	
Ur:					
Urban land----------	80	Not rated		Not rated	
Us:					
Urban land----------	50	Not rated		Not rated	
Frederick-----------	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Pricetown-----------	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Uw:					
Urban land----------	50	Not rated		Not rated	
Weikert-------------	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Culleoka------------	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
W:					
Water---------------	100	Not rated		Not rated	
WcC:					
Weikert-------------	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Culleoka------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
WcD:					
Weikert-------------	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
WcD:					
Culleoka------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Yo:					
Yosemite------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14.—Construction Materials, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
CaC:							
Carpenter	85	Fair		Fair		Poor	
		Organic matter content low	0.12	Depth to bedrock	0.95	Rock fragments	0.00
		Too acid	0.68			Slope	0.96
CbE:							
Carpenter	45	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.68	Depth to bedrock	0.95	Rock fragments	0.00
Lenberg	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Organic matter content low	0.12	Low strength	0.00	Slope	0.00
		Droughty	0.30	Slope	0.00	Depth to bedrock	0.42
		Depth to bedrock	0.42	Shrink-swell	0.66	Too acid	0.88
		Too acid	0.50				
		Water erosion	0.90				
Cg:							
Chagrin	85	Fair		Good		Fair	
		Organic matter content low	0.50			Hard to reclaim (rock fragments)	0.74
		Too acid	0.92				
CwB:							
Culleoka	55	Fair		Poor		Poor	
		Organic matter content low	0.29	Depth to bedrock	0.00	Rock fragments	0.00
		Too acid	0.74	Low strength	0.78	Depth to bedrock	0.93
		Depth to bedrock	0.93				
		Droughty	0.94				
Weikert	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00			Depth to bedrock	0.00
		Organic matter content low	0.12			Too acid	0.98
		Too acid	0.54				
Du:							
Dunning	90	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.88	Low strength	0.00	Too clayey	0.00
		Water erosion	0.99	Shrink-swell	0.87		
EwB:							
Etowah	90	Fair		Fair		Fair	
		Organic matter content low	0.12	Low strength	0.78	Rock fragments	0.68
		Too acid	0.50			Too acid	0.88
		Water erosion	0.99				

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
EwC:							
Etowah	90	Fair		Fair		Fair	
		Organic matter content low	0.12	Low strength	0.78	Rock fragments	0.68
		Too acid	0.50			Too acid	0.88
		Water erosion	0.99			Slope	0.96
FkB:							
Frankstown	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Low strength	0.00	Rock fragments	0.00
		Too acid	0.54	Depth to bedrock	0.04	Too clayey	0.49
		Too clayey	0.84	Shrink-swell	0.98	Hard to reclaim (rock fragments)	0.84
		Water erosion	0.99			Too acid	0.98
FkC2:							
Frankstown	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Low strength	0.00	Rock fragments	0.00
		Too acid	0.54	Depth to bedrock	0.04	Too clayey	0.49
		Too clayey	0.84	Shrink-swell	0.98	Hard to reclaim (rock fragments)	0.84
		Water erosion	0.99			Slope	0.96
						Too acid	0.98
FkD2:							
Frankstown	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.54	Depth to bedrock	0.04	Rock fragments	0.00
		Too clayey	0.68	Slope	0.98	Too clayey	0.39
		Water erosion	0.99	Shrink-swell	0.98	Hard to reclaim (rock fragments)	0.84
						Too acid	0.98
FrB2:							
Frederick	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.87	Too acid	0.98
		Too acid	0.54				
FrC2:							
Frederick	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.87	Slope	0.96
		Too acid	0.54			Too acid	0.98
FrD2:							
Frederick	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Organic matter content low	0.12	Shrink-swell	0.87	Too clayey	0.00
		Too acid	0.54	Slope	0.98	Too acid	0.98
FvE:							
Frederick	70	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.00	Too clayey	0.00
		Too acid	0.54	Shrink-swell	0.87	Too acid	0.98

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
FvE:							
Caneyville----------	20	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Too clayey	0.00
		Depth to bedrock	0.54	Slope	0.00	Depth to bedrock	0.54
		Droughty	0.61	Shrink-swell	0.90		
		Too acid	0.88				
		Water erosion	0.90				
GaF:							
Garmon--------------	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.16			Depth to bedrock	0.16
		Too acid	0.88				
GpB:							
Gilpin--------------	85	Fair		Poor		Poor	
		Droughty	0.04	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.10	Low strength	0.00	Depth to bedrock	0.10
		Organic matter content low	0.12			Too clayey	0.57
		Too acid	0.50			Too acid	0.88
		Too clayey	0.98				
GpC:							
Gilpin--------------	85	Fair		Poor		Poor	
		Droughty	0.04	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.10	Low strength	0.00	Depth to bedrock	0.10
		Organic matter content low	0.12			Too clayey	0.57
		Too acid	0.50			Too acid	0.88
		Too clayey	0.98			Slope	0.96
GpD:							
Gilpin--------------	80	Fair		Poor		Poor	
		Droughty	0.04	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Low strength	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Slope	0.98	Depth to bedrock	0.10
		Too acid	0.50			Too clayey	0.57
		Too clayey	0.98			Too acid	0.88
Jo:							
Johnsburg-----------	85	Fair		Poor		Fair	
		Too acid	0.12	Low strength	0.00	Wetness depth	0.04
		Organic matter content low	0.12	Wetness depth	0.04	Too acid	0.59
		Water erosion	0.90				
La:							
Lawrence------------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.04
		Too acid	0.74	Wetness depth	0.04		
		Water erosion	0.90				
		Droughty	0.92				

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Ld:							
Lindside-----------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.29
		Water erosion	0.99	Wetness depth	0.29		
LoB:							
Lonewood-----------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.88
		Too acid	0.32				
		Water erosion	0.99				
LoC:							
Lonewood-----------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.88
						Slope	0.96
		Too acid	0.32				
		Water erosion	0.99				
Me:							
Melvin-------------	85	Fair		Poor		Poor	
		Organic matter content low	0.12	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.97		
Mp:							
Melvin-------------	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.97		
NeB:							
Needmore-----------	85	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.10
		Depth to bedrock	0.10	Shrink-swell	0.12	Rock fragments	0.95
		Organic matter content low	0.12				
		Too acid	0.68				
		Water erosion	0.99				
NeC2:							
Needmore-----------	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Depth to bedrock	0.71
				Shrink-swell	0.70	Slope	0.96
		Droughty	0.64				
		Too acid	0.68				
		Depth to bedrock	0.71				
		Water erosion	0.99				
NeD3:							
Needmore-----------	80	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Slope	0.00
		Depth to bedrock	0.03	Shrink-swell	0.12	Depth to bedrock	0.03
		Organic matter content low	0.12	Slope	0.98		
		Too acid	0.68				
		Water erosion	0.99				

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
NfD:							
Needmore------------	80	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Slope	0.04
		Depth to bedrock	0.10	Shrink-swell	0.12	Depth to bedrock	0.10
		Organic matter content low	0.12			Rock fragments	0.95
		Too acid	0.68				
		Water erosion	0.99				
Nk:							
Newark--------------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.04
				Wetness depth	0.04		
		Water erosion	0.90				
		Too acid	0.92				
No:							
Nolin---------------	85	Fair		Poor		Good	
		Organic matter content low	0.88	Low strength	0.00		
		Water erosion	0.90				
		Too acid	0.92				
OtA:							
Otwood--------------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.53
				Wetness depth	0.53	Too acid	0.88
		Too acid	0.32	Shrink-swell	0.99		
		Water erosion	0.90				
OtB:							
Otwood--------------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.53
				Wetness depth	0.53	Too acid	0.88
		Too acid	0.32	Shrink-swell	0.99		
		Water erosion	0.90				
OtC2:							
Otwood--------------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.09
				Wetness depth	0.09	Too acid	0.88
		Too acid	0.32	Shrink-swell	0.98	Slope	0.96
		Water erosion	0.90				
		Droughty	0.96				
Pq:							
Pits, quarry--------	100	Not rated		Not rated		Not rated	
PrB:							
Pricetown-----------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.95
				Shrink-swell	0.99		
		Too acid	0.50				
		Water erosion	0.90				

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
PrC:							
Pricetown-----------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.95
		Too acid	0.50	Shrink-swell	0.99	Slope	0.96
		Water erosion	0.90				
RnB:							
Riney---------------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.88
		Too acid	0.32	Depth to bedrock	0.58	Rock fragments	0.92
		Water erosion	0.99				
RnC:							
Riney---------------	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.88
		Too acid	0.32	Depth to bedrock	0.58	Rock fragments	0.92
		Water erosion	0.99			Slope	0.96
Ro:							
Robertsville--------	85	Fair		Poor		Poor	
		Droughty	0.03	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.12	Low strength	0.00		
		Too acid	0.74				
		Water erosion	0.90				
RpD:							
Rock outcrop--------	65	Not rated		Not rated		Not rated	
Caneyville----------	25	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Slope	0.37
		Depth to bedrock	0.54	Shrink-swell	0.90	Depth to bedrock	0.54
		Droughty	0.61				
		Too acid	0.88				
		Water erosion	0.90				
RsF:							
Rohan---------------	90	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Too acid	0.74			Depth to bedrock	0.00
		Organic matter content low	0.88				
Sa:							
Sano----------------	85	Fair		Poor		Fair	
		Organic matter content low	0.03	Low strength	0.00	Wetness depth	0.29
		Too acid	0.50	Wetness depth	0.29	Too acid	0.68
		Water erosion	0.90				
		Droughty	0.99				

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Sk:							
Skidmore------------	85	Fair		Good		Poor	
		Organic matter content low	0.12			Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
		Droughty	0.39				
TaB:							
Tarklin-------------	80	Fair		Fair		Poor	
		Droughty	0.02	Wetness depth	0.53	Rock fragments	0.00
		Organic matter content low	0.12			Hard to reclaim (rock fragments)	0.00
		Too acid	0.32			Wetness depth	0.53
						Too acid	0.88
TaC:							
Tarklin-------------	85	Fair		Fair		Poor	
		Droughty	0.02	Wetness depth	0.53	Rock fragments	0.00
		Organic matter content low	0.12			Hard to reclaim (rock fragments)	0.00
		Too acid	0.32			Wetness depth	0.53
						Too acid	0.88
						Slope	0.96
TeB:							
Teddy---------------	90	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.44
				Wetness depth	0.44	Too acid	0.88
		Too acid	0.32				
		Droughty	0.69				
		Water erosion	0.90				
Ud:							
Udarents------------	60	Not rated		Not rated		Not rated	
Urban land----------	40	Not rated		Not rated		Not rated	
Ur:							
Urban land----------	80	Not rated		Not rated		Not rated	
Us:							
Urban land----------	50	Not rated		Not rated		Not rated	
Frederick-----------	20	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.87	Rock fragments	0.59
						Slope	0.63
		Too acid	0.54			Too acid	0.98
Pricetown-----------	20	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Slope	0.63
				Shrink-swell	0.99	Too acid	0.98
		Too acid	0.50				
		Water erosion	0.90				
Uw:							
Urban land----------	50	Not rated		Not rated		Not rated	

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Uw:							
Weikert	20	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00			Depth to bedrock	0.00
		Organic matter content low	0.12			Slope	0.63
						Too acid	0.98
		Too acid	0.54				
Culleoka	20	Fair		Poor		Fair	
		Organic matter content low	0.29	Depth to bedrock	0.00	Rock fragments	0.12
				Low strength	0.22	Slope	0.63
		Too acid	0.74			Depth to bedrock	0.93
		Depth to bedrock	0.93				
		Droughty	0.94				
W:							
Water	100	Not rated		Not rated		Not rated	
WcC:							
Weikert	55	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00			Depth to bedrock	0.00
		Organic matter content low	0.12			Slope	0.96
						Too acid	0.98
		Too acid	0.54				
Culleoka	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.01	Low strength	0.78	Depth to bedrock	0.01
		Too acid	0.74			Slope	0.96
		Organic matter content low	0.88				
WcD:							
Weikert	55	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00	Slope	0.98	Depth to bedrock	0.00
		Organic matter content low	0.12			Slope	0.00
						Too acid	0.98
		Too acid	0.54				
Culleoka	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.01	Low strength	0.78	Rock fragments	0.00
		Too acid	0.74	Slope	0.98	Depth to bedrock	0.01
		Organic matter content low	0.88				
Yo:							
Yosemite	85	Fair		Fair		Poor	
		Organic matter content low	0.12	Wetness depth	0.04	Hard to reclaim (rock fragments)	0.00
		Droughty	0.89			Rock fragments	0.00
						Wetness depth	0.04

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

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
CaC:							
Carpenter	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.01	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.01				
CbE:							
Carpenter	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.01	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.01				
Lenberg	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.89	Depth to water	1.00
		Depth to bedrock	0.15	Hard to pack	0.72		
Cg:							
Chagrin	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Seepage	0.03	Depth to water	1.00
						Slow refill	0.28
CwB:							
Culleoka	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.66	Depth to water	1.00
		Depth to bedrock	0.66	Piping	0.63		
		Slope	0.08				
Weikert	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.96	Thin layer	1.00	Depth to water	1.00
		Slope	0.08				
Du:							
Dunning	90	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Cutbanks cave	0.10
				Hard to pack	0.55		
EwB:							
Etowah	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.95	Depth to water	1.00
		Slope	0.08				
EwC:							
Etowah	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.95	Depth to water	1.00
		Seepage	0.72				
FkB:							
Frankstown	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.37	Depth to water	1.00
		Slope	0.08				
		Depth to bedrock	0.01				

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
FkC2:							
Frankstown	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.37	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.01				
FkD2:							
Frankstown	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.37	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.01				
FrB2:							
Frederick	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.08	Hard to pack	0.96	Depth to water	1.00
		Seepage	0.02				
FrC2:							
Frederick	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.96	Depth to water	1.00
		Seepage	0.02				
FrD2:							
Frederick	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.96	Depth to water	1.00
		Seepage	0.02				
FvE:							
Frederick	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.96	Depth to water	1.00
		Seepage	0.02				
Caneyville	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.86	Depth to water	1.00
		Depth to bedrock	0.86	Hard to pack	0.55		
GaF:							
Garmon	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Slope	1.00	Piping	0.26		
		Depth to bedrock	0.96				
GpB:							
Gilpin	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.91	Thin layer	0.98	Depth to water	1.00
		Seepage	0.72	Piping	0.20		
		Slope	0.08				
GpC:							
Gilpin	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.91	Piping	0.20		
		Seepage	0.72				
GpD:							
Gilpin	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.91	Piping	0.20		
		Seepage	0.72				

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Jo:							
Johnsburg-----------	85	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.74	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.72	Piping	0.11		
La:							
Lawrence------------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	0.06		
Ld:							
Lindside------------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Depth to saturated zone	1.00	Slow refill	0.46
						Cutbanks cave	0.10
				Piping	0.11		
LoB:							
Lonewood------------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.18	Depth to water	1.00
		Slope	0.08				
LoC:							
Lonewood------------	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.18	Depth to water	1.00
		Seepage	1.00				
Me:							
Melvin--------------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	0.67		
Mp:							
Melvin--------------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Ponding	1.00		
				Piping	0.67		
NeB:							
Needmore------------	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.30	Thin layer	0.98	Depth to water	1.00
		Slope	0.08	Hard to pack	0.55		
NeC2:							
Needmore------------	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.81	Depth to water	1.00
		Depth to bedrock	0.08	Hard to pack	0.62		
NeD3:							
Needmore------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.37	Hard to pack	0.93		
NfD:							
Needmore------------	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.30	Hard to pack	0.61		

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
Nk:							
Newark	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	0.28	Cutbanks cave	0.10
No:							
Nolin	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.31	Depth to water	1.00
OtA:							
Otwood	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	0.99	Depth to water	1.00
				Piping	0.13		
OtB:							
Otwood	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	0.99	Depth to water	1.00
		Slope	0.08	Piping	0.13		
OtC2:							
Otwood	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.72	Piping	0.01		
Pq:							
Pits, quarry	100	Not rated		Not rated		Not rated	
PrB:							
Pricetown	85	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			Depth to water	1.00
		Slope	0.08				
PrC:							
Pricetown	85	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.72				
RnB:							
Riney	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.23	Depth to water	1.00
		Slope	0.08	Thin layer	0.11		
		Depth to bedrock	0.01				
RnC:							
Riney	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.23	Depth to water	1.00
		Slope	1.00	Thin layer	0.11		
		Depth to bedrock	0.01				
Ro:							
Robertsville	85	Not limited		Very limited		Somewhat limited	
				Depth to saturated zone	1.00	Slow refill	0.28
				Piping	0.03	Cutbanks cave	0.10

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
RpD:							
Rock outcrop	65	Not rated		Not rated		Not rated	
Caneyville	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.86	Depth to water	1.00
		Depth to bedrock	0.86	Hard to pack	0.55		
RsF:							
Rohan	90	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
Sa:							
Sano	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	0.99		
Sk:							
Skidmore	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.07	Cutbanks cave	1.00
						Depth to saturated zone	0.96
TaB:							
Tarklin	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.99	Depth to water	1.00
		Slope	0.08				
TaC:							
Tarklin	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.99	Depth to water	1.00
		Seepage	1.00				
TeB:							
Teddy	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
		Slope	0.08				
Ud:							
Udarents	60	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
Ur:							
Urban land	80	Not rated		Not rated		Not rated	
Us:							
Urban land	50	Not rated		Not rated		Not rated	
Frederick	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.96	Depth to water	1.00
		Seepage	0.02				
Pricetown	20	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.72				

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
Uw:							
Urban land	50	Not rated		Not rated		Not rated	
Weikert	20	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.96				
Culleoka	20	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.66	Depth to water	1.00
		Slope	1.00	Piping	0.63		
		Depth to bedrock	0.66				
W:							
Water	100	Not rated		Not rated		Not rated	
WcC:							
Weikert	55	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.97				
Culleoka	35	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Seepage	1.00	Piping	0.05		
		Depth to bedrock	0.99				
WcD:							
Weikert	55	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.96				
Culleoka	35	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Seepage	1.00	Piping	0.05		
		Depth to bedrock	0.99				
Yo:							
Yosemite	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00

Table 16.—Engineering Properties

(Absence of an entry indicates that the data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CaC:												
Carpenter-------	0-6	Gravelly silt loam	CL, ML	A-6	0	0-7	75-90	51-90	44-90	36-78	15-35	NP-16
	6-14	Silt loam, loam, gravelly silt loam	CL-ML, CL	A-6	0	6-21	81-94	59-87	53-86	45-74	20-40	5-20
	14-36	Silty clay loam, silt loam, gravelly silty clay loam	ML, CL, GC	A-6	0	9-15	69-90	55-90	50-90	44-90	25-45	5-20
	36-56	Silty clay, silty clay loam, channery silty clay	CH, CL	A-7-6, A-7	0	0-18	82-100	64-100	54-100	51-100	30-60	15-40
	56-65	Bedrock			---	---	---	---	---	---	---	---
CbE:												
Carpenter-------	0-6	Gravelly silt loam	CL, ML	A-6	0	0-7	75-90	51-90	44-90	36-78	15-35	NP-16
	6-14	Silt loam, loam, gravelly silt loam	CL-ML, CL	A-6	0	6-21	81-94	59-87	53-86	45-74	20-40	5-20
	14-36	Gravelly silty clay loam, silty clay loam, silt loam	ML, CL, GC	A-6	0	9-15	69-90	55-90	50-90	44-90	25-45	5-20
	36-56	Silty clay, silty clay loam, channery silty clay	CH, CL	A-7-6, A-7	0	0-18	82-100	64-100	54-100	51-100	30-60	15-40
	56-65	Bedrock			---	---	---	---	---	---	---	---
Lenberg---------	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0-8	80-100	59-100	54-100	50-99	20-45	2-22
	5-11	Silty clay loam, silty clay, gravelly clay	CH, CL	A-6, A-7-6, A-7	0	0-7	80-100	61-100	54-100	52-100	35-70	15-40
	11-21	Silty clay, clay, gravelly clay	CH, CL, MH, ML	A-7, A-7-6	0	0-7	81-100	61-100	54-100	53-100	45-70	19-40
	21-29	Channery silty clay, clay, silty clay	CH, CL, GC, SC	A-7, A-7-6	0	0	73-92	36-92	30-92	30-92	45-70	20-50
	29-40	Bedrock			---	---	---	---	---	---	---	---
Cg:												
Chagrin---------	0-8	Fine sandy loam	CL, CL-ML, ML	A-6	0	0-3	94-100	80-100	67-91	38-54	25-35	2-15
	8-41	Loam, silt loam, fine sandy loam	CL, SM, SC-SM	A-4, A-6	0	0-2	93-100	76-100	65-95	43-66	20-40	NP-14
	41-80	Stratified gravelly sandy loam to loam, sandy loam, loam	ML, SM, SC	A-2-4, A-4	0	0-1	81-100	60-100	42-89	19-52	20-40	NP-15

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CwB:												
Culleoka--------	0-13	Channery silt loam	CL, CL-ML, ML	A-6	0	0-11	75-100	57-100	51-100	46-92	0-35	NP-14
	13-36	Channery silt loam, channery silty clay loam, channery loam	CL, CL-ML, ML	A-4, A-6	0	0-16	72-84	60-84	55-84	48-84	20-40	2-20
	36-46	Bedrock			---	---	---	---	---	---	---	---
Weikert---------	0-7	Channery silt loam	GM, ML, SM, GC	A-2, A-6	0	0-4	59-100	34-90	31-90	26-80	27-41	4-15
	7-15	Very channery silt loam, channery loam, gravelly loam	GC	A-1, A-2, A-2-6	0	11-17	48-64	28-52	25-52	21-45	24-36	3-19
	15-25	Bedrock			---	---	---	---	---	---	---	---
	25-31	Bedrock			---	---	---	---	---	---	---	---
Du:												
Dunning---------	0-8	Silty clay loam	CL-ML, ML, CL	A-4, A-7-6	0	0	90-100	84-100	82-100	73-99	25-58	4-28
	8-36	Silty clay, clay, silty clay loam	CH, CL	A-7-6, A-7	0	0	92-100	83-100	72-100	68-100	45-70	20-40
	36-72	Silty clay, clay	CH, CL	A-7-6, A-7	0	0	92-100	69-100	63-100	61-100	45-70	20-40
EwB:												
Etowah----------	0-12	Silt loam, loam	CL, CL-ML, ML, SC-SM	A-4	0	0-6	87-100	71-100	64-100	56-92	20-30	3-10
	12-80	Silty clay loam, clay loam	CL	A-6	0	0-4	90-100	78-100	76-100	66-98	25-35	10-15
EwC:												
Etowah----------	0-12	Silt loam	CL, CL-ML, ML, SC-SM	A-4	0	0-6	87-100	71-100	64-100	56-92	20-30	3-10
	12-80	Silty clay loam, clay loam	CL	A-6	0	0-4	90-100	78-100	76-100	66-98	25-35	10-15
FkB:												
Frankstown------	0-9	Gravelly silt loam, silt loam	CL	A-4, A-6	0	0-2	86-100	67-100	58-100	48-86	24-41	7-19
	9-20	Channery silty clay loam, gravelly silt loam, gravelly silty clay loam	CL, GC	A-6, A-7	0	0-6	75-100	47-100	41-100	36-98	27-49	12-28
	20-42	Gravelly silty clay loam, gravelly silt loam, channery silty clay loam	CL, GC	A-6, A-7-6	0	0-3	74-100	45-100	41-100	36-100	35-59	17-36
	42-51	Bedrock			---	---	---	---	---	---	---	---

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
FkC2:												
Frankstown------	0-9	Gravelly silt loam	CL	A-4, A-6	0	0-2	86-100	67-100	58-100	48-86	24-41	7-19
	9-20	Channery silty clay loam, gravelly silt loam, gravelly silty clay loam	CL, GC	A-6, A-7	0	0-6	75-100	47-100	41-100	36-98	27-49	12-28
	20-42	Gravelly silty clay loam, gravelly silt loam, channery silty clay loam	CL, GC	A-6, A-7-6	0	0-3	74-100	45-100	41-100	36-100	35-59	17-36
	42-51	Bedrock			---	---	---	---	---	---	---	---
FkD2:												
Frankstown------	0-9	Gravelly silt loam, silt loam	CL	A-4, A-6	0	0-2	86-100	67-100	58-100	48-86	24-41	7-19
	9-20	Channery silty clay loam, gravelly silt loam, gravelly silty clay loam	CL, GC	A-6, A-7	0	0-6	75-100	47-100	41-100	36-98	27-49	12-28
	20-42	Gravelly silty clay loam, channery silty clay loam, gravelly silt loam	CL, GC	A-6, A-7-6	0	0-3	74-100	45-100	41-100	36-100	35-59	17-36
	42-51	Bedrock			---	---	---	---	---	---	---	---
FrB2:												
Frederick-------	0-9	Silt loam	CL, CL-ML, ML	A-6	0	0-6	88-100	71-100	61-100	51-85	15-35	NP-15
	9-36	Silty clay, silty clay loam	CH, MH	A-7-6, A-7	0	0-6	88-100	72-100	55-100	52-100	50-70	20-40
	36-80	Clay, silty clay, gravelly clay	CH, MH	A-7-6, A-7	0	0-6	88-100	71-100	55-100	50-100	60-85	28-55
FrC2:												
Frederick-------	0-9	Silt loam	CL, CL-ML, ML	A-6	0	0-6	88-100	71-100	61-100	51-85	15-35	NP-15
	9-36	Silty clay, silty clay loam	CH, MH	A-7-6, A-7	0	0-6	88-100	72-100	55-100	52-100	50-70	20-40
	36-80	Clay, silty clay, gravelly clay	CH, MH	A-7-6, A-7	0	0-6	88-100	71-100	55-100	50-100	60-85	28-55
FrD2:												
Frederick-------	0-9	Silt loam	CL, CL-ML, ML	A-6	0	0-6	88-100	71-100	61-100	51-85	15-35	NP-15
	9-36	Silty clay, silty clay loam	CH, MH	A-7-6, A-7	0	0-6	88-100	72-100	55-100	52-100	50-70	20-40
	36-80	Clay, silty clay, gravelly clay	CH, MH	A-7-6, A-7	0	0-6	88-100	71-100	55-100	50-100	60-85	28-55

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
FvE:												
Frederick-------	0-9	Silt loam	CL, CL-ML, ML	A-6	0	0-6	88-100	71-100	61-100	51-85	15-35	NP-15
	9-36	Silty clay, silty clay loam	CH, MH	A-7-6, A-7	0	0-6	88-100	72-100	55-100	52-100	50-70	20-40
	36-80	Clay, silty clay, gravelly clay	CH, MH	A-7-6, A-7	0	0-6	88-100	71-100	55-100	50-100	60-85	28-55
Caneyville------	0-12	Silt loam	CL, CL-ML	A-4, A-6	0	0-2	93-100	83-100	72-100	59-86	20-35	2-15
	12-30	Silty clay, clay	CH, CL	A-7-6	0	0-2	94-100	85-100	68-100	64-100	42-70	20-45
	30-34	Bedrock			---	---	---	---	---	---	---	---
GaF:												
Garmon----------	0-4	Channery silt loam	CL, CL-ML	A-4, A-6	0	0-3	78-100	61-100	53-100	44-86	20-35	5-15
	4-17	Channery loam, channery silt loam, channery silty clay loam	CL, GC-GM, SC	A-4, A-6	0	0-12	69-87	42-87	37-87	32-85	20-40	5-20
	17-25	Very channery silt loam, channery clay loam, channery loam	CL, CL-ML, GC-GM, SC	A-6, A-4, A-2	0	0-12	69-87	42-87	38-87	32-85	20-40	5-20
	25-29	Bedrock			---	---	---	---	---	---	---	---
GpB:												
Gilpin----------	0-8	Channery silt loam	CL, CL-ML	A-4, A-6	0	0-1	83-90	60-90	56-90	54-90	20-40	4-15
	8-15	Channery silt loam, channery loam, channery silty clay loam	CL, CL-ML	A-4, A-6	0	0-1	83-100	70-100	64-100	62-100	20-40	4-20
	15-24	Channery silty clay loam, channery loam, channery silt loam	CL, CL-ML, GC, SC	A-4, A-6	0	0-15	76-91	52-91	45-91	43-91	20-40	4-35
	24-28	Bedrock			---	---	---	---	---	---	---	---
	28-38	Bedrock			---	---	---	---	---	---	---	---
GpC:												
Gilpin----------	0-8	Channery silt loam	CL, CL-ML	A-4, A-6	0	0-1	83-90	60-90	56-90	54-90	20-40	4-15
	8-15	Channery silt loam, channery loam, channery silty clay loam	CL, CL-ML	A-4, A-6	0	0-1	83-100	70-100	64-100	62-100	20-40	4-20
	15-24	Channery silty clay loam, channery silt loam, channery loam	CL, CL-ML, GC, SC	A-4, A-6	0	0-15	76-91	52-91	45-91	43-91	20-40	4-30
	24-28	Bedrock			---	---	---	---	---	---	---	---
	28-38	Bedrock			---	---	---	---	---	---	---	---

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
GpD:												
Gilpin----------	0-8	Channery silt loam	CL, CL-ML	A-4, A-6	0	0-1	83-90	60-90	56-90	54-90	20-40	4-15
	8-15	Channery silt loam, channery loam, channery silty clay loam	CL, CL-ML	A-4, A-6	0	0-1	83-100	70-100	64-100	62-100	20-40	4-20
	15-24	Channery silty clay loam, channery loam, channery silt loam	CL, CL-ML, GC, SC	A-4, A-6	0	0-15	76-91	52-91	45-91	43-91	20-40	4-30
	24-28	Bedrock			---	---	---	---	---	---	---	---
	28-38	Bedrock			---	---	---	---	---	---	---	---
Jo:												
Johnsburg-------	0-13	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	87-100	24-41	5-19
	13-34	Silt loam, silty clay loam	CL	A-6	0	0	100	100	92-100	87-100	27-49	12-28
	34-55	Silty clay loam, silt loam, loam	CL	A-6	0	0	97-100	92-100	86-100	82-100	27-49	12-28
	55-72	Silty clay loam, silt loam	CL	A-7-6	0	0	97-100	92-100	77-100	74-100	29-50	12-29
	72-78	Bedrock			---	---	---	---	---	---	---	---
La:												
Lawrence--------	0-9	Silt loam	CL	A-6	0	0	95-100	90-100	84-100	78-100	25-35	2-15
	9-24	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	96-100	91-100	86-100	82-100	25-42	5-20
	24-47	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	96-100	92-100	84-100	80-100	25-42	5-20
	47-72	Silty clay, silty clay loam	CL, CL-ML, MH, ML	A-4, A-7-6, A-7	0	0	96-100	87-100	75-100	70-100	25-60	5-25
Ld:												
Lindside--------	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	84-100	78-98	20-35	2-15
	8-80	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	83-100	79-100	25-40	4-18
LoB:												
Lonewood--------	0-15	Loam	CL, CL-ML, ML	A-6	0	0	100	91-100	79-98	61-78	18-40	3-15
	15-28	Loam, clay loam	CL	A-6, A-4	0	0	96-100	91-100	72-100	54-90	20-49	6-28
	28-48	Clay loam, silty clay loam, loam	CL	A-4, A-6	0	0	96-100	91-100	68-100	47-77	24-49	9-28
	48-59	Clay loam, loam, silty clay loam	CL, SC-SM, CL-ML	A-4, A-6	0	0	92-100	83-100	57-95	39-74	16-42	2-22
	59-66	Bedrock			---	---	---	---	---	---	---	---
	66-76	Bedrock			---	---	---	---	---	---	---	---

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
LoC:												
Lonewood--------	0-15	Loam	CL, CL-ML, ML	A-6	0	0	100	91-100	79-98	61-78	18-40	3-15
	15-28	Loam, clay loam	CL	A-6, A-4	0	0	96-100	91-100	72-100	54-90	20-49	6-28
	28-48	Clay loam, silty clay loam, loam	CL	A-4, A-6	0	0	96-100	91-100	68-100	47-77	24-49	9-28
	48-59	Clay loam, loam, silty clay loam	CL, SC-SM, CL-ML	A-4, A-6	0	0	92-100	83-100	57-93	39-72	16-40	2-21
	59-66	Bedrock			---	---	---	---	---	---	---	---
	66-76	Bedrock			---	---	---	---	---	---	---	---
Me:												
Melvin----------	0-8	Silt loam	CL, CL-ML, ML	A-6	0	0	96-100	91-100	82-100	75-97	25-35	4-18
	8-22	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	96-100	91-100	86-100	81-100	25-40	5-20
	22-80	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	85-100	69-100	62-100	58-100	25-40	5-20
Mp:												
Melvin----------	0-8	Silt loam	CL, CL-ML, ML	A-6	0	0	96-100	91-100	82-100	75-97	25-35	4-18
	8-22	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	96-100	91-100	86-100	81-100	25-40	5-20
	22-80	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	85-100	69-100	62-100	58-100	25-40	5-20
NeB:												
Needmore--------	0-6	Silt loam	CL, CL-ML, ML	A-6	0	0	95-100	86-100	80-100	78-100	18-41	3-19
	6-10	Silty clay, clay	CH, CL, MH	A-7-6, A-7	0	0	96-100	87-100	80-100	76-100	43-65	18-35
	10-24	Silty clay, channery clay, channery silty clay	CH, CL, GC, MH	A-7-6, A-7	0	0-13	71-100	58-100	52-100	48-100	43-65	18-40
	24-34	Bedrock			---	---	---	---	---	---	---	---
NeC2:												
Needmore--------	0-5	Silt loam	CL, CL-ML, ML	A-6	0	0	95-100	86-100	80-100	78-100	18-41	3-19
	5-26	Silty clay, clay	CH, CL, MH	A-7-6, A-7	0	0	96-100	87-100	80-100	76-100	43-65	18-35
	26-32	Silty clay, channery clay, channery silty clay	CH, CL, GC, MH	A-7-6, A-7	0	0-13	71-100	58-100	52-100	48-100	43-65	18-40
	32-36	Bedrock			---	---	---	---	---	---	---	---
NeD3:												
Needmore--------	0-3	Silty clay loam	CL, CL-ML, ML	A-7-6	0	0	95-100	86-100	76-100	73-98	18-52	3-28
	3-7	Silty clay, clay	CH, CL, MH	A-7-6, A-7	0	0	96-100	87-100	80-100	76-100	43-65	18-35
	7-22	Clay, channery silty clay, silty clay	CH, CL, GC, MH	A-7-6, A-7	0	0-20	74-100	63-100	53-100	49-97	43-65	18-40
	22-32	Bedrock			---	---	---	---	---	---	---	---

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
NfD:												
Needmore--------	0-5	Silt loam	CL, CL-ML, ML	A-6	0	0	95-100	86-100	80-100	78-100	18-41	3-19
	5-10	Silty clay, clay	CH, CL, MH	A-7, A-7-6	0	0	96-100	87-100	80-100	76-100	43-65	18-35
	10-24	Silty clay, channery silty clay, clay	CH, CL, MH	A-7, A-7-6	0	0-20	74-100	63-100	57-100	53-100	43-65	18-40
	24-34	Bedrock			---	---	---	---	---	---	---	---
Nk:												
Newark----------	0-6	Silt loam	CL, CL-ML, ML	A-6	0	0	100	88-100	83-100	76-100	15-35	NP-15
	6-30	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	96-100	89-100	84-100	81-100	22-42	3-20
	30-80	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	89-100	75-100	66-100	61-100	22-42	3-20
No:												
Nolin-----------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	94-100	87-100	82-100	25-40	5-18
	8-42	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	94-100	89-100	84-100	25-46	5-23
	42-80	Silt loam, loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	84-100	68-100	59-100	55-95	15-38	NP-20
OtA:												
Otwood----------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	89-100	86-100	80-99	25-35	5-15
	8-28	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	89-100	84-100	80-100	25-40	5-20
	28-69	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	91-100	84-100	80-100	25-40	5-20
	69-80	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	96-100	77-100	67-100	62-100	35-50	15-30
OtB:												
Otwood----------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	89-100	86-100	80-99	25-35	5-15
	8-28	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	89-100	84-100	80-100	25-40	5-20
	28-69	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	91-100	84-100	80-100	25-40	5-20
	69-80	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	96-100	77-100	67-100	62-100	35-50	15-30
OtC2:												
Otwood----------	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	88-100	86-100	80-99	25-35	5-15
	4-24	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	89-100	83-100	80-100	25-40	5-20
	24-52	Silt loam, silty clay loam	CL, CL-ML	A-4, A-7-6	0	0	100	91-100	79-100	75-100	25-45	5-25
	52-80	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	96-100	77-100	67-100	62-100	35-50	15-30

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Pq. Pits, quarry												
PrB: Pricetown-------	0-7	Silt loam	CL-ML, CL	A-6	0	0	100	91-100	84-100	77-100	20-40	2-18
	7-30	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	91-100	81-100	76-100	30-42	8-20
	30-80	Clay, silty clay loam, gravelly clay	CH, MH	A-6, A-7, A-7-6	0	0-11	82-100	56-100	46-100	39-100	35-65	15-30
PrC: Pricetown-------	0-7	Silt loam	CL-ML, CL	A-6	0	0	100	91-100	84-100	77-100	20-40	2-18
	7-30	Silty clay loam, silt loam	CL	A-4, A-6	0	0	100	91-100	81-100	76-100	30-42	8-20
	30-80	Clay, silty clay loam, gravelly clay	CH, MH	A-6, A-7-6, A-7	0	0-11	82-100	56-100	46-100	39-100	35-65	15-30
RnB: Riney-----------	0-6	Loam	CL-ML, CL, ML	A-6	0	0	100	82-100	64-98	45-75	18-43	3-18
	6-42	Clay loam, loam, sandy clay loam	CL	A-4, A-6	0	0	100	82-100	66-100	49-82	25-39	9-20
	42-50	Sandy loam, loam, sandy clay loam	SC, CL-ML	A-4, A-6	0	0	100	100	70-98	41-69	18-44	3-25
	50-56	Bedrock			---	---	---	---	---	---	---	---
RnC: Riney-----------	0-6	Loam	CL-ML, CL, ML	A-6	0	0	100	82-100	64-98	45-75	18-43	3-18
	6-42	Clay loam, loam, sandy clay loam	CL	A-4, A-6	0	0	100	82-100	66-100	49-82	25-39	9-20
	42-50	Sandy loam, loam, sandy clay loam	SC, CL-ML	A-4, A-6	0	0	100	100	70-98	41-69	18-44	3-25
	50-56	Bedrock			---	---	---	---	---	---	---	---
Ro: Robertsville----	0-8	Silt loam	ML, CL	A-6	0	0	100	94-100	88-100	81-100	25-35	2-15
	8-16	Silt loam, silty clay loam	CL, ML	A-4, A-6, A-7	0	0	100	95-100	89-100	84-100	25-45	3-20
	16-40	Silt loam, silty clay loam	CL, ML	A-4, A-6, A-7	0	0	100	95-100	88-100	84-100	25-45	3-20
	40-80	Silty clay loam, silt loam	CL-ML, CH, CL	A-4, A-7-6, A-7	0	0	100	78-100	68-100	65-100	25-60	5-35
RpD: Rock outcrop.												
Caneyville------	0-12	Silt loam	CL, CL-ML	A-4, A-6	0	0-2	93-100	83-100	72-100	59-86	20-35	2-20
	12-30	Silty clay, clay	CH, CL	A-7-6	0	0-3	90-100	77-100	61-100	58-100	42-70	20-45
	30-34	Bedrock			---	---	---	---	---	---	---	---

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
RsF:												
Rohan-----------	0-4	Channery silt loam	CL, GC, GC-GM, ML	A-4, A-6	0	0-1	73-82	50-82	45-82	43-82	25-40	3-15
	4-16	Extremely channery silty clay loam, very channery silty clay loam	GC, GC-GM, GM	A-2-6, A-4, A-2	0	0-14	46-69	20-69	20-69	19-69	25-45	3-25
	16-22	Bedrock			---	---	---	---	---	---	---	---
Sa:												
Sano------------	0-10	Silt loam	CL-ML, ML	A-4	0	0	100	94-100	92-100	83-94	22-30	2-9
	10-21	Silt loam	CL, CL-ML	A-4	0	0	100	94-100	92-100	85-96	22-30	7-12
	21-28	Silt loam	CL, CL-ML	A-4	0	0	100	95-100	92-100	85-96	22-29	7-12
	28-81	Silt loam, silty clay loam	CL, CL-ML	A-6	0	0	94-100	85-100	79-100	70-100	22-48	7-28
Sk:												
Skidmore--------	0-6	Gravelly loam	GM, ML, SM, SC	A-2-4, A-6, A-2	0	0-10	70-90	34-90	27-88	18-64	15-30	3-19
	6-28	Very gravelly sandy loam, very gravelly loam, gravelly fine sandy loam	SP-SC, SC-SM	A-1, A-2, A-2-4	0	6-27	54-79	14-52	9-48	4-28	15-30	NP-19
	28-81	Extremely gravelly sandy loam, very gravelly loam, gravelly fine sandy loam	SP-SC, SC-SM	A-1, A-2-4, A-1-a	0	5-14	56-76	13-51	8-46	3-24	15-30	NP-19
TaB:												
Tarklin---------	0-7	Gravelly silt loam	CL, GM, GC, SM	A-6	0	0	67-81	48-81	41-81	34-71	23-35	2-15
	7-20	Gravelly silt loam	GC, CL, GM, ML	A-6	0	0	69-83	50-83	45-82	39-71	27-38	2-19
	20-60	Gravelly silt loam, gravelly silty clay loam, very gravelly silt loam	CL, GC, GM, ML	A-4, A-2-6	0	0-5	48-86	14-64	12-64	11-64	27-49	2-20
	60-81	Very gravelly silt loam, very gravelly silty clay loam, gravelly loam	CL, GC, GM, ML	A-2-6, A-4, A-6	0	0-8	61-64	32-64	27-64	23-64	22-49	2-20

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
TaC:												
Tarklin---------	0-7	Gravelly silt loam	CL, GM, GC, SM	A-6	0	0	67-81	48-81	41-81	34-71	23-35	2-15
	7-20	Gravelly silt loam	GC, CL, GM, ML	A-6	0	0	69-83	50-83	45-82	39-71	27-38	2-19
	20-60	Gravelly silt loam, gravelly silty clay loam, very gravelly silt loam	CL, GC, GM, ML	A-4, A-2-6	0	0-5	48-86	14-64	12-64	11-64	27-49	2-20
	60-81	Very gravelly silt loam, very gravelly silty clay loam, gravelly loam	CL, GC, GM, ML	A-2-6, A-4, A-6	0	0-8	61-64	32-64	27-64	23-64	22-49	2-20
TeB:												
Teddy-----------	0-9	Silt loam	CL, CL-ML, ML	A-6	0	0	98-100	96-100	83-100	68-86	20-35	3-15
	9-24	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	98-100	96-100	85-100	72-96	25-40	5-20
	24-48	Clay loam, silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	98-100	97-100	81-100	69-94	25-40	5-20
	48-80	Silty clay, silty clay loam, clay loam	CL, CL-ML, ML	A-4, A-6, A-7-6	0	0	92-100	77-100	65-100	57-100	25-67	5-30
Ud.												
Udarents, Urban-land												
Ur.												
Urban land												
Us:												
Urban land.												
Frederick-------	0-9	Silt loam	CL, CL-ML, ML	A-6	0	0-4	91-100	79-100	68-100	56-85	15-35	NP-15
	9-36	Silty clay, silty clay loam	CH, MH	A-7-6, A-7	0	0-1	90-100	77-100	59-100	56-100	50-70	20-40
	36-80	Clay, silty clay, gravelly clay	CH, MH	A-7-6, A-7	0	0-6	88-100	71-100	55-100	50-100	60-85	28-55
Pricetown-------	0-7	Silt loam	CL	A-4	0	0	100	94-100	92-100	85-100	24-41	7-19
	7-30	Silty clay loam, silt loam	CL	A-4, A-6	0	0	100	95-100	84-100	79-100	27-44	8-20
	30-80	Silty clay loam, clay, gravelly clay	CH	A-6, A-7, A-7-6	0	0-11	82-100	56-100	47-100	40-100	39-67	21-44

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Uw:												
Urban land.												
Weikert	0-7	Channery silt loam	GM, ML, SM, GC-GM, CL	A-6, A-4	0	0-8	70-100	35-90	32-90	27-80	27-41	4-15
	7-15	Very channery silt loam, channery loam, gravelly loam	GC, SC	A-1, A-2, A-2-6	0	9-15	55-74	27-51	25-51	20-44	24-36	3-19
	15-25	Bedrock			---	---	---	---	---	---	---	---
	25-31	Bedrock			---	---	---	---	---	---	---	---
Culleoka	0-13	Channery silt loam	CL, CL-ML, ML	A-6	0	0-23	82-100	65-100	59-100	52-92	0-35	NP-15
	13-36	Channery silty clay loam, channery silt loam, channery loam	CL, CL-ML, ML	A-4, A-6	0	0-16	72-84	60-84	55-84	48-84	20-40	2-20
	36-46	Bedrock			---	---	---	---	---	---	---	---
W.												
Water												
WcC:												
Weikert	0-7	Channery silt loam	GM, ML, SM, GC-GM, CL	A-2, A-6	0	0-8	70-100	35-90	32-90	27-80	27-41	4-15
	7-15	Very channery silt loam, channery loam, gravelly loam	GC, SC	A-1, A-2, A-2-6	0	9-15	55-74	27-51	25-51	20-44	24-36	3-19
	15-25	Bedrock			---	---	---	---	---	---	---	---
	25-31	Bedrock			---	---	---	---	---	---	---	---
Culleoka	0-4	Channery silt loam	CL, CL-ML, ML	A-6	0	0-30	77-100	65-100	60-100	52-93	0-35	NP-15
	4-21	Channery silty clay loam, channery silt loam, channery loam	CL, CL-ML, ML	A-4, A-6	0	0-11	65-82	53-82	47-82	41-81	20-40	2-20
	21-23	Bedrock			---	---	---	---	---	---	---	---
WcD:												
Weikert	0-7	Channery silt loam	GM, ML, SM, GC-GM, CL	A-2, A-6	0	0-8	70-100	35-90	32-90	27-80	27-41	4-15
	7-15	Very channery silt loam, channery loam, gravelly loam	GC, SC	A-1, A-2, A-2-6	0	9-15	59-74	27-51	25-51	20-44	24-36	3-19
	15-25	Bedrock			---	---	---	---	---	---	---	---
	25-31	Bedrock			---	---	---	---	---	---	---	---

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
WcD:												
Culleoka--------	0-4	Channery silt loam	CL, CL-ML, ML	A-6	0	0-30	77-100	65-100	60-100	52-93	0-35	NP-15
	4-21	Channery silty clay loam, channery silt loam, channery loam	CL, CL-ML, ML	A-4, A-6	0	0-11	65-82	53-82	47-82	41-81	20-40	2-20
	21-23	Bedrock			---	---	---	---	---	---	---	---
Yo:												
Yosemite--------	0-9	Gravelly silt loam	GC-GM, GM, ML, CL-ML	A-2, A-4	0	0	67-86	47-73	40-73	34-63	20-35	2-10
	9-17	Very gravelly loam, very gravelly silt loam	GC-GM, GM, SC-SM	A-1, A-2-4, A-4	0	0-2	72-78	42-61	33-58	24-44	20-35	2-10
	17-30	Extremely gravelly loam, very gravelly loam, extremely gravelly clay loam	SC, GC-GM, GM	A-1, A-2, A-4, A-2-6	0	8-13	59-73	27-50	21-50	15-42	25-40	2-20
	30-80	Extremely gravelly sandy loam, extremely gravelly clay loam, very gravelly sandy loam	GP-GC, GC-GM	A-1, A-2, A-2-6	0	0-18	51-52	9-48	7-48	4-34	25-40	5-20

Table 17.—Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
CaC:												
Carpenter----------------	0-6	0-50	50-80	12-27	1.20-1.40	2.00-6.00	0.16-0.22	0.0-2.9	1.0-4.0	.28	.32	4
	6-14	0-52	28-80	18-27	1.20-1.50	0.60-2.00	0.10-0.20	0.0-2.9	0.0-0.5	.28	.32	
	14-36	0-50	40-80	18-40	1.20-1.50	0.60-2.00	0.10-0.20	0.0-2.9	0.0-0.5	.28	.32	
	36-56	0-20	40-73	28-60	1.20-1.60	0.06-0.20	0.07-0.16	3.0-5.9	0.0-0.2	.28	.28	
	56-65	---	---	---	---	---	---	---	---	---	---	
CbE:												
Carpenter----------------	0-6	0-50	50-80	12-27	1.20-1.40	2.00-6.00	0.16-0.22	0.0-2.9	1.0-4.0	.28	.32	4
	6-14	0-52	28-80	18-27	1.20-1.50	0.60-2.00	0.10-0.20	0.0-2.9	0.0-0.5	.28	.32	
	14-36	0-50	40-80	18-40	1.20-1.50	0.60-2.00	0.10-0.20	0.0-2.9	0.0-0.5	.28	.32	
	36-56	0-20	40-73	28-60	1.20-1.60	0.06-0.20	0.07-0.16	3.0-5.9	0.0-0.2	.28	.28	
	56-65	---	---	---	---	---	---	---	---	---	---	
Lenberg------------------	0-5	0-50	50-80	12-27	1.30-1.50	0.60-2.00	0.18-0.23	0.0-2.9	0.5-3.0	.43	.43	3
	5-11	0-44	0-73	28-60	1.40-1.60	0.20-0.60	0.10-0.19	3.0-5.9	0.0-0.5	.37	.28	
	11-21	0-44	0-60	40-60	1.40-1.65	0.06-0.20	0.10-0.18	3.0-5.9	0.0-0.5	.37	.28	
	21-29	0-44	0-60	40-60	1.40-1.65	0.00-0.20	0.10-0.16	3.0-5.9	0.0-0.5	.28	.37	
	29-40	---	---	---	---	---	---	---	---	---	---	
Cg:												
Chagrin------------------	0-8	43-85	0-49	12-19	1.20-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.5-3.0	.32	.32	5
	8-41	20-85	0-80	18-27	1.20-1.50	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.8	.32	.37	
	41-80	23-85	0-49	7-27	1.20-1.40	0.60-2.00	0.08-0.20	0.0-2.9	0.0-0.5	.32	.43	
CwB:												
Culleoka-----------------	0-13	0-50	50-80	15-27	1.20-1.55	0.60-6.00	0.14-0.20	0.0-2.9	1.0-3.0	.28	.32	3
	13-36	0-52	28-80	18-40	1.20-1.55	0.60-6.00	0.12-0.20	0.0-2.9	0.2-1.0	.28	.32	
	36-46	---	---	---	---	---	---	---	---	---	---	
Weikert------------------	0-7	20-50	50-80	15-27	1.20-1.40	2.00-6.00	0.08-0.14	0.0-2.9	1.0-2.0	.28	.32	2
	7-15	20-53	28-80	15-27	1.20-1.40	2.00-6.00	0.04-0.08	0.0-2.9	0.0-0.5	.28	.37	
	15-25	---	---	---	---	---	---	---	---	---	---	
	25-31	---	---	---	---	---	---	---	---	---	---	
Du:												
Dunning------------------	0-8	0-20	40-73	28-40	1.20-1.40	0.20-2.00	0.19-0.23	0.0-2.9	2.0-5.0	.37	.37	5
	8-36	0-45	0-73	28-60	1.40-1.65	0.06-0.20	0.14-0.18	3.0-5.9	1.0-5.0	.28	.28	
	36-72	0-45	0-60	40-60	1.40-1.65	0.06-0.20	0.14-0.18	3.0-5.9	0.5-1.0	.28	.28	
EwB:												
Etowah-------------------	0-12	0-52	28-80	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	12-80	0-45	15-73	27-40	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.8	.32	.32	

Table 17.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
EwC:												
Etowah------------------	0-12	0-52	28-80	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	12-80	0-45	15-73	27-40	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.8	.32	.32	
FkB:												
Frankstown--------------	0-9	0-50	40-80	12-27	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	9-20	0-45	40-80	18-40	1.30-1.50	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28	
	20-42	0-44	0-80	25-50	1.30-1.50	0.60-2.00	0.12-0.16	3.0-5.9	0.0-0.5	.28	.32	
	42-51	---	---	---	---	---	---	---	---	---	---	
FkC2:												
Frankstown--------------	0-9	0-50	40-80	12-27	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	9-20	0-45	40-80	18-40	1.30-1.50	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28	
	20-42	0-44	0-80	25-50	1.30-1.50	0.60-2.00	0.12-0.16	3.0-5.9	0.0-0.5	.28	.32	
	42-51	---	---	---	---	---	---	---	---	---	---	
FkD2:												
Frankstown--------------	0-9	0-50	40-80	12-27	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	9-20	0-45	40-80	18-40	1.30-1.50	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28	
	20-42	0-44	0-80	25-50	1.30-1.50	0.60-2.00	0.12-0.16	3.0-5.9	0.0-0.5	.28	.32	
	42-51	---	---	---	---	---	---	---	---	---	---	
FrB2:												
Frederick---------------	0-9	0-50	50-80	13-27	1.25-1.50	0.60-2.00	0.16-0.24	0.0-2.9	1.0-2.0	.32	.32	4
	9-36	0-19	40-73	28-60	1.20-1.50	0.06-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24	
	36-80	0-44	0-60	40-80	1.35-1.50	0.00-0.20	0.10-0.18	3.0-5.9	0.0-0.5	.24	.24	
FrC2:												
Frederick---------------	0-9	0-50	50-80	13-27	1.25-1.50	0.60-2.00	0.16-0.24	0.0-2.9	1.0-2.0	.32	.32	4
	9-36	0-19	40-73	28-60	1.20-1.50	0.06-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24	
	36-80	0-44	0-60	40-80	1.35-1.50	0.00-0.20	0.10-0.18	3.0-5.9	0.0-0.5	.24	.24	
FrD2:												
Frederick---------------	0-9	0-50	50-80	13-27	1.25-1.50	0.60-2.00	0.16-0.24	0.0-2.9	1.0-2.0	.32	.32	4
	9-36	0-19	40-73	28-60	1.20-1.50	0.06-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24	
	36-80	0-44	0-60	40-80	1.35-1.50	0.00-0.20	0.10-0.18	3.0-5.9	0.0-0.5	.24	.24	
FvE:												
Frederick---------------	0-9	0-50	50-80	13-27	1.25-1.50	0.60-2.00	0.16-0.24	0.0-2.9	1.0-2.0	.32	.32	4
	9-36	0-19	40-73	28-60	1.20-1.50	0.06-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24	
	36-80	0-44	0-60	40-80	1.35-1.50	0.00-0.20	0.10-0.18	3.0-5.9	0.0-0.5	.24	.24	
Caneyville--------------	0-12	0-50	50-80	12-27	1.20-1.40	0.60-2.00	0.15-0.22	3.0-5.9	1.0-3.0	.43	.43	3
	12-30	0-44	0-60	40-80	1.35-1.60	0.00-0.20	0.12-0.18	3.0-5.9	0.0-0.5	.28	.32	
	30-34	---	---	---	---	---	---	---	---	---	---	

Table 17.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
GaF:												
Garmon------------------	0-4	20-50	50-80	12-27	1.20-1.40	2.00-6.00	0.14-0.20	0.0-2.9	0.5-3.0	.32	.32	3
	4-17	0-52	28-80	18-40	1.20-1.50	2.00-6.00	0.05-0.16	0.0-2.9	0.0-0.5	.28	.32	
	17-25	20-52	28-80	18-40	1.20-1.50	2.00-6.00	0.05-0.16	0.0-2.9	0.0-0.5	.20	.32	
	25-29	---	---	---	---	---	---	---	---	---	---	
GpB:												
Gilpin------------------	0-8	0-52	28-80	12-27	1.20-1.40	0.60-2.00	0.12-0.18	0.0-2.9	0.5-2.0	.32	.32	3
	8-15	0-52	28-80	18-40	1.20-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.28	
	15-24	0-52	28-80	18-40	1.20-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.49	
	24-28	---	---	---	---	---	---	---	---	---	---	
	28-38	---	---	---	---	---	---	---	---	---	---	
GpC:												
Gilpin------------------	0-8	0-52	28-80	12-27	1.20-1.40	0.60-2.00	0.12-0.18	0.0-2.9	0.5-2.0	.32	.32	3
	8-15	0-52	28-80	18-40	1.20-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.28	
	15-24	0-52	28-80	18-40	1.20-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.49	
	24-28	---	---	---	---	---	---	---	---	---	---	
	28-38	---	---	---	---	---	---	---	---	---	---	
GpD:												
Gilpin------------------	0-8	0-52	28-80	12-27	1.20-1.40	0.60-2.00	0.12-0.18	0.0-2.9	0.5-2.0	.32	.32	3
	8-15	0-52	28-80	18-40	1.20-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.28	
	15-24	0-52	28-80	18-40	1.20-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.49	
	24-28	---	---	---	---	---	---	---	---	---	---	
	28-38	---	---	---	---	---	---	---	---	---	---	
Jo:												
Johnsburg---------------	0-13	0-50	50-80	12-27	1.30-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	3
	13-34	0-50	40-80	18-40	1.40-1.55	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.5	.43	.43	
	34-55	0-52	28-80	18-40	1.65-1.80	0.00-0.20	0.00-0.02	0.0-2.9	0.0-0.5	.43	.49	
	55-72	0-50	40-80	18-40	1.50-1.70	0.00-0.20	0.00-0.02	3.0-5.9	0.0-0.5	.43	.43	
	72-78	---	---	---	---	---	---	---	---	---	---	
La:												
Lawrence----------------	0-9	0-50	50-80	12-27	1.20-1.40	0.60-2.00	0.19-0.23	0.0-2.9	1.0-4.0	.43	.43	3
	9-24	0-50	40-80	18-40	1.40-1.55	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.5	.37	.37	
	24-47	0-50	40-80	18-40	1.65-1.80	0.00-0.20	0.00-0.02	0.0-2.9	0.0-0.5	.43	.43	
	47-72	0-19	40-73	18-60	1.55-1.70	0.00-0.20	0.00-0.02	3.0-5.9	0.0-0.5	.37	.37	
Ld:												
Lindside----------------	0-8	0-50	50-80	15-27	1.20-1.40	0.60-2.00	0.20-0.26	0.0-2.9	1.0-3.0	.32	.32	5
	8-80	0-50	40-80	18-40	1.20-1.40	0.20-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.37	.37	

Table 17.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
LoB:												
Lonewood----------------	0-15	23-52	28-50	15-25	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	15-28	20-50	15-53	10-40	1.40-1.55	0.60-2.00	0.05-0.11	0.0-2.9	0.0-0.5	.32	.32	
	28-48	20-80	15-53	15-40	1.40-1.55	0.60-2.00	0.05-0.11	0.0-2.9	0.0-0.5	.32	.32	
	48-59	20-85	15-53	5-32	1.40-1.55	0.60-6.00	0.05-0.11	0.0-2.9	0.0-0.5	.32	.32	
	59-66	---	---	---	---	---	---	---	---	---	---	
	66-76	---	---	---	---	---	---	---	---	---	---	
LoC:												
Lonewood----------------	0-15	23-52	28-50	15-25	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	15-28	20-50	15-53	10-40	1.40-1.55	0.60-2.00	0.05-0.11	0.0-2.9	0.0-0.5	.32	.32	
	28-48	20-80	15-53	15-40	1.40-1.55	0.60-2.00	0.05-0.11	0.0-2.9	0.0-0.5	.32	.32	
	48-59	20-85	15-53	5-30	1.40-1.55	0.60-6.00	0.05-0.11	0.0-2.9	0.0-0.5	.32	.32	
	59-66	---	---	---	---	---	---	---	---	---	---	
	66-76	---	---	---	---	---	---	---	---	---	---	
Me:												
Melvin------------------	0-8	0-50	50-80	12-27	1.20-1.60	0.60-2.00	0.18-0.23	0.0-2.9	0.5-3.0	.43	.43	5
	8-22	0-50	40-80	18-40	1.30-1.60	0.60-2.00	0.18-0.23	0.0-2.9	0.0-0.5	.43	.43	
	22-80	0-52	28-80	12-40	1.40-1.70	0.20-2.00	0.16-0.23	3.0-5.9	0.0-0.5	.43	.43	
Mp:												
Melvin------------------	0-8	0-50	50-80	12-27	1.20-1.60	0.60-2.00	0.18-0.23	0.0-2.9	0.5-3.0	.43	.43	5
	8-22	0-50	40-80	18-40	1.30-1.60	0.60-2.00	0.18-0.23	0.0-2.9	0.0-0.5	.43	.43	
	22-80	0-52	28-80	12-40	1.40-1.70	0.20-2.00	0.16-0.23	3.0-5.9	0.0-0.5	.43	.43	
NeB:												
Needmore----------------	0-6	0-50	50-80	18-27	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	6-10	0-44	0-60	40-60	1.45-1.60	0.06-0.20	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	10-24	0-44	0-60	40-60	1.47-1.60	0.00-0.20	0.05-0.10	6.0-8.9	0.0-0.5	.24	.32	
	24-34	---	---	---	---	---	---	---	---	---	---	
NeC2:												
Needmore----------------	0-5	0-50	50-80	18-27	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	5-26	0-44	0-60	40-60	1.45-1.60	0.06-0.20	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	26-32	0-44	0-60	40-60	1.47-1.60	0.00-0.20	0.05-0.10	6.0-8.9	0.0-0.5	.24	.32	
	32-36	---	---	---	---	---	---	---	---	---	---	
NeD3:												
Needmore----------------	0-3	0-50	50-80	28-40	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	3-7	0-44	0-60	40-60	1.45-1.60	0.06-0.20	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	7-22	0-44	0-60	40-60	1.47-1.60	0.00-0.20	0.05-0.10	6.0-8.9	0.0-0.5	.24	.32	
	22-32	---	---	---	---	---	---	---	---	---	---	

Table 17.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
NfD:												
Needmore----------------	0-5	0-50	50-80	18-27	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	5-10	0-44	0-60	40-60	1.45-1.60	0.06-0.20	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	10-24	0-44	0-60	40-60	1.47-1.60	0.00-0.20	0.05-0.10	6.0-8.9	0.0-0.5	.24	.32	
	24-34	---	---	---	---	---	---	---	---	---	---	
Nk:												
Newark------------------	0-6	0-50	50-80	12-27	1.20-1.40	0.60-2.00	0.15-0.23	0.0-2.9	1.0-4.0	.43	.43	5
	6-30	0-50	40-80	18-40	1.20-1.45	0.60-2.00	0.18-0.23	0.0-2.9	0.2-1.0	.43	.43	
	30-80	0-50	40-80	12-40	1.30-1.50	0.60-2.00	0.15-0.22	0.0-2.9	0.0-0.8	.43	.43	
No:												
Nolin-------------------	0-8	0-50	50-80	12-27	1.20-1.40	0.60-2.00	0.18-0.23	0.0-2.9	2.0-4.0	.43	.43	5
	8-42	0-50	40-80	18-40	1.25-1.50	0.60-2.00	0.18-0.23	0.0-2.9	0.2-1.0	.43	.43	
	42-80	0-52	28-80	12-27	1.30-1.55	0.60-2.00	0.10-0.23	0.0-2.9	0.0-0.8	.43	.43	
OtA:												
Otwood------------------	0-8	0-50	50-80	18-27	1.25-1.40	0.60-2.00	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	3
	8-28	0-50	40-80	18-40	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.8	.43	.43	
	28-69	0-50	40-80	18-40	1.65-1.80	0.00-0.20	0.00-0.02	3.0-5.9	0.0-0.5	.43	.43	
	69-80	0-50	40-80	18-40	1.50-1.65	0.00-0.20	0.00-0.02	3.0-5.9	0.0-0.8	.43	.43	
OtB:												
Otwood------------------	0-8	0-50	50-80	18-27	1.25-1.40	0.60-2.00	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	3
	8-28	0-50	40-80	18-40	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.8	.43	.43	
	28-69	0-50	40-80	18-40	1.65-1.80	0.00-0.20	0.00-0.02	3.0-5.9	0.0-0.5	.43	.43	
	69-80	0-50	40-80	18-40	1.50-1.65	0.00-0.20	0.00-0.02	3.0-5.9	0.0-0.8	.43	.43	
OtC2:												
Otwood------------------	0-4	0-50	50-80	18-27	1.25-1.40	0.60-2.00	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	3
	4-24	0-50	40-80	18-40	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.8	.43	.43	
	24-52	0-50	40-80	18-40	1.65-1.80	0.00-0.20	0.00-0.02	3.0-5.9	0.0-0.5	.43	.43	
	52-80	0-50	40-80	18-40	1.50-1.65	0.00-0.20	0.00-0.02	3.0-5.9	0.0-0.8	.43	.43	
Pq.												
Pits, quarry												
PrB:												
Pricetown---------------	0-7	0-50	50-80	12-27	1.35-1.55	0.60-2.00	0.18-0.24	0.0-2.9	1.0-4.0	.43	.43	5
	7-30	0-19	40-80	18-40	1.40-1.65	0.60-2.00	0.16-0.22	0.0-2.9	0.0-0.5	.43	.43	
	30-80	0-44	0-73	28-60	1.40-1.65	0.06-0.60	0.10-0.18	3.0-5.9	0.0-0.5	.28	.28	
PrC:												
Pricetown---------------	0-7	0-50	50-80	12-27	1.35-1.55	0.60-2.00	0.18-0.24	0.0-2.9	1.0-4.0	.43	.43	5
	7-30	0-19	40-80	18-40	1.40-1.65	0.60-2.00	0.16-0.22	0.0-2.9	0.0-0.5	.43	.43	
	30-80	0-44	0-73	28-60	1.40-1.65	0.06-0.60	0.10-0.18	3.0-5.9	0.0-0.5	.28	.28	

Table 17.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors		
										Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
RnB:												
Riney-------------------	0-6	23-52	28-50	7-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	6-42	20-52	15-80	18-40	1.30-1.45	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37	
	42-50	23-85	0-50	7-35	1.30-1.45	2.00-6.00	0.12-0.15	0.0-2.9	0.0-0.2	.37	.37	
	50-56	---	---	---	---	---	---	---	---	---	---	
RnC:												
Riney-------------------	0-6	23-52	28-50	7-27	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	6-42	20-52	15-80	18-40	1.30-1.45	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37	
	42-50	23-85	0-50	7-35	1.30-1.45	2.00-6.00	0.12-0.15	0.0-2.9	0.0-0.2	.37	.37	
	50-56	---	---	---	---	---	---	---	---	---	---	
Ro:												
Robertsville------------	0-8	0-50	50-80	12-27	1.30-1.50	0.60-2.00	0.19-0.23	0.0-2.9	1.0-3.0	.43	.43	3
	8-16	0-19	40-80	18-40	1.40-1.60	0.60-2.00	0.18-0.22	0.0-2.9	0.2-0.8	.43	.43	
	16-40	0-19	40-80	18-40	1.65-1.75	0.00-0.20	0.00-0.01	0.0-2.9	0.0-0.5	.43	.43	
	40-80	0-19	40-80	18-40	1.50-1.60	0.00-0.20	0.00-0.01	3.0-5.9	0.0-0.5	.37	.37	
RpD:												
Rock outcrop.												
Caneyville--------------	0-12	0-50	50-80	12-27	1.20-1.40	0.60-2.00	0.15-0.22	3.0-5.9	1.0-3.0	.43	.43	3
	12-30	0-44	0-60	40-80	1.35-1.60	0.00-0.20	0.12-0.18	3.0-5.9	0.0-0.5	.28	.32	
	30-34	---	---	---	---	---	---	---	---	---	---	
RsF:												
Rohan-------------------	0-4	0-50	50-80	12-27	1.20-1.50	0.60-2.00	0.10-0.16	0.0-2.9	0.5-3.0	.28	.32	2
	4-16	0-19	40-73	28-40	1.20-1.60	2.00-6.00	0.04-0.10	0.0-2.9	0.5-1.0	.17	.28	
	16-22	---	---	---	---	---	---	---	---	---	---	
Sa:												
Sano--------------------	0-10	0-50	50-80	10-16	1.35-1.50	0.60-2.00	0.20-0.23	0.0-2.9	1.0-2.0	.43	.43	3
	10-21	0-15	50-80	12-18	1.35-1.50	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43	
	21-28	0-15	50-80	12-18	1.50-1.70	0.06-0.20	0.12-0.15	0.0-2.9	0.0-0.2	.43	.43	
	28-81	0-19	40-80	12-40	1.65-1.80	0.00-0.20	0.00-0.02	0.0-2.9	0.0-0.2	.43	.43	
Sk:												
Skidmore----------------	0-6	23-52	28-50	7-27	1.20-1.40	2.00-6.00	0.07-0.13	0.0-2.9	0.5-2.0	.17	.24	5
	6-28	23-85	0-50	0-27	1.30-1.60	6.00-20.00	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24	
	28-81	23-85	0-50	0-27	1.30-1.60	6.00-20.00	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24	
TaB:												
Tarklin-----------------	0-7	0-50	50-80	12-27	1.25-1.45	0.60-6.00	0.13-0.18	0.0-2.9	0.5-2.0	.28	.32	3
	7-20	0-50	50-80	18-27	1.45-1.55	0.60-6.00	0.13-0.18	0.0-2.9	0.0-0.5	.28	.32	
	20-60	0-50	40-80	18-40	1.60-1.80	0.00-0.06	0.00-0.10	0.0-2.9	0.0-0.5	.28	.32	
	60-81	0-52	28-80	12-40	1.60-1.80	0.00-0.06	0.00-0.10	0.0-2.9	0.0-0.5	.28	.37	

Table 17.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
TaC:												
Tarklin-----------------	0-7	0-50	50-80	12-27	1.25-1.45	0.60-6.00	0.13-0.18	0.0-2.9	0.5-2.0	.28	.32	3
	7-20	0-50	50-80	18-27	1.45-1.55	0.60-6.00	0.13-0.18	0.0-2.9	0.0-0.5	.28	.32	
	20-60	0-50	40-80	18-40	1.60-1.80	0.00-0.06	0.00-0.10	0.0-2.9	0.0-0.5	.28	.32	
	60-81	0-52	28-80	12-40	1.60-1.80	0.00-0.06	0.00-0.10	0.0-2.9	0.0-0.5	.28	.37	
TeB:												
Teddy-------------------	0-9	0-50	50-80	12-27	1.35-1.60	0.60-2.00	0.20-0.22	0.0-2.9	0.0-2.0	.43	.43	3
	9-24	0-50	50-80	18-40	1.40-1.60	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43	
	24-48	0-52	28-80	18-40	1.60-1.80	0.00-0.20	0.00-0.01	0.0-2.9	0.0-0.5	.43	.43	
	48-80	0-45	0-73	27-60	1.55-1.75	0.00-0.20	0.00-0.01	3.0-5.9	0.0-0.5	.32	.32	
Ud.												
Udarents-Urban land												
Ur.												
Urban land												
Us:												
Urban land.												
Frederick---------------	0-9	0-50	50-80	13-27	1.25-1.50	0.60-2.00	0.16-0.24	0.0-2.9	1.0-2.0	.32	.32	4
	9-36	0-19	40-73	28-60	1.20-1.50	0.06-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24	
	36-80	0-44	0-60	40-80	1.35-1.50	0.00-0.20	0.10-0.18	3.0-5.9	0.0-0.5	.24	.24	
Pricetown---------------	0-7	0-50	50-80	12-27	1.35-1.55	0.60-2.00	0.18-0.24	0.0-2.9	1.0-2.0	.43	.43	5
	7-30	0-50	40-80	18-35	1.40-1.65	0.60-2.00	0.16-0.22	0.0-2.9	0.0-0.5	.43	.43	
	30-80	0-45	0-73	30-60	1.40-1.70	0.20-0.60	0.10-0.18	3.0-5.9	0.0-0.5	.28	.28	
Uw:												
Urban land.												
Weikert-----------------	0-7	20-50	50-80	15-27	1.20-1.40	2.00-6.00	0.08-0.14	0.0-2.9	1.0-2.0	.28	.32	2
	7-15	20-53	28-80	15-27	1.20-1.40	2.00-6.00	0.04-0.08	0.0-2.9	0.0-0.5	.28	.37	
	15-25	---	---	---	---	---	---	---	---	---	---	
	25-31	---	---	---	---	---	---	---	---	---	---	
Culleoka----------------	0-13	0-50	50-80	15-27	1.20-1.55	0.60-6.00	0.14-0.20	0.0-2.9	1.0-3.0	.28	.32	3
	13-36	0-52	28-80	18-40	1.20-1.55	0.60-6.00	0.12-0.20	0.0-2.9	0.2-1.0	.28	.32	
	36-46	---	---	---	---	---	---	---	---	---	---	
W.												
Water												

Table 17.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
WcC:												
Weikert-----------------	0-7	20-50	50-80	15-27	1.20-1.40	2.00-6.00	0.08-0.14	0.0-2.9	1.0-2.0	.28	.32	2
	7-15	20-53	28-80	15-27	1.20-1.40	2.00-6.00	0.04-0.08	0.0-2.9	0.0-0.5	.28	.37	
	15-25	---	---	---	---	---	---	---	---	---	---	
	25-31	---	---	---	---	---	---	---	---	---	---	
Culleoka----------------	0-4	0-50	50-80	15-27	1.20-1.40	0.60-6.00	0.14-0.20	0.0-2.9	1.0-3.0	.28	.32	3
	4-21	0-52	28-80	18-40	1.20-1.50	0.60-6.00	0.12-0.20	0.0-2.9	0.5-1.0	.28	.32	
	21-23	---	---	---	---	---	---	---	---	---	---	
WcD:												
Weikert-----------------	0-7	20-50	50-80	15-27	1.20-1.40	2.00-6.00	0.08-0.14	0.0-2.9	1.0-2.0	.28	.32	2
	7-15	20-53	28-80	15-27	1.20-1.40	2.00-6.00	0.04-0.08	0.0-2.9	0.0-0.5	.28	.37	
	15-25	---	---	---	---	---	---	---	---	---	---	
	25-31	---	---	---	---	---	---	---	---	---	---	
Culleoka----------------	0-4	0-50	50-80	15-27	1.20-1.40	0.60-6.00	0.14-0.20	0.0-2.9	1.0-3.0	.28	.32	3
	4-21	0-52	28-80	18-40	1.20-1.50	0.60-6.00	0.12-0.20	0.0-2.9	0.5-1.0	.28	.32	
	21-23	---	---	---	---	---	---	---	---	---	---	
Yo:												
Yosemite----------------	0-9	0-50	50-80	12-27	1.20-1.40	2.00-6.00	0.10-0.18	0.0-2.9	1.0-4.0	.20	.37	5
	9-17	0-52	28-80	12-27	1.20-1.40	2.00-6.00	0.07-0.13	0.0-2.9	0.0-0.5	.17	.32	
	17-30	20-52	15-53	12-40	1.20-1.40	6.00-20.00	0.04-0.10	0.0-2.9	0.0-0.5	.15	.24	
	30-80	20-85	15-53	16-40	1.20-1.50	6.00-20.00	0.04-0.10	0.0-2.9	0.0-0.5	.15	.28	

Table 18.—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
	In	meq/100 g	meq/100 g	pH
CaC:				
Carpenter	0-6	4.4-10.0	---	4.5-6.5
	6-14	6.0-9.6	---	4.5-6.5
	14-36	6.0-12	---	4.5-6.5
	36-56	9.3-21	---	4.5-6.5
	56-65	---	---	---
CbE:				
Carpenter	0-6	4.4-10	---	4.5-6.5
	6-14	6.0-9.6	---	4.5-6.5
	14-36	6.0-12	---	4.5-6.5
	36-56	9.3-21	---	4.5-6.5
	56-65	---	---	---
Lenberg	0-5	---	2.0-5.3	4.5-6.0
	5-11	---	5.5-15	4.5-5.5
	11-21	---	8.0-15	4.5-5.5
	21-29	---	8.0-15	4.5-5.5
	29-40	---	---	---
Cg:				
Chagrin	0-8	6.5-10	---	5.6-7.3
	8-41	9.1-14	---	5.6-7.3
	41-80	3.6-14	---	5.6-7.3
CwB:				
Culleoka	0-13	8.1-15	---	5.1-6.0
	13-36	7.1-21	---	5.1-6.0
	36-46	---	---	---
Weikert	0-7	---	3.9-8.4	4.5-6.0
	7-15	---	4.6-13	4.5-5.6
	15-25	---	---	---
	25-31	---	---	---
Du:				
Dunning	0-8	15-22	---	5.6-7.8
	8-36	15-32	---	5.6-7.8
	36-72	21-32	---	5.6-7.8
EwB:				
Etowah	0-12	---	2.0-10	4.5-5.5
	12-80	---	2.0-5.0	4.5-5.5
EwC:				
Etowah	0-12	---	2.0-10	4.5-5.5
	12-80	---	2.0-5.0	4.5-5.5
FkB:				
Frankstown	0-9	---	2.0-10	4.5-6.0
	9-20	---	2.0-10	4.5-6.0
	20-42	---	2.0-10	4.5-6.0
	42-51	---	---	---

Table 18.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
FkC2:				
Frankstown-------------	0-9	---	2.0-10	4.5-6.0
	9-20	---	2.0-10	4.5-6.0
	20-42	---	2.0-10	4.5-6.0
	42-51	---	---	---
FkD2:				
Frankstown-------------	0-9	---	2.0-10	4.5-6.0
	9-20	---	2.0-10	4.5-6.0
	20-42	---	2.0-10	4.5-6.0
	42-51	---	---	---
FrB2:				
Frederick--------------	0-9	---	0.0-35	4.5-6.0
	9-36	---	0.0-35	4.5-6.0
	36-80	---	0.0-35	4.5-6.0
FrC2:				
Frederick--------------	0-9	---	0.0-35	4.5-6.0
	9-36	---	0.0-35	4.5-6.0
	36-80	---	0.0-35	4.5-6.0
FrD2:				
Frederick--------------	0-9	---	0.0-35	4.5-6.0
	9-36	---	0.0-35	4.5-6.0
	36-80	---	0.0-35	4.5-6.0
FvE:				
Frederick--------------	0-9	---	0.0-35	4.5-6.0
	9-36	---	0.0-35	4.5-6.0
	36-80	---	0.0-35	4.5-6.0
Caneyville-------------	0-12	6.5-15	---	5.0-7.3
	12-30	20-42	---	5.0-7.8
	30-34	---	---	---
GaF:				
Garmon-----------------	0-4	4.3-9.9	---	4.5-7.3
	4-17	6.0-14	---	4.5-7.3
	17-25	6.0-14	---	5.2-7.3
	25-29	---	---	---
GpB:				
Gilpin-----------------	0-8	---	3.1-9.1	3.6-5.5
	8-15	---	5.7-21	3.6-5.5
	15-24	---	5.7-21	3.6-5.5
	24-28	---	---	---
	28-38	---	---	---
GpC:				
Gilpin-----------------	0-8	---	3.1-9.1	3.6-5.5
	8-15	---	5.7-21	3.6-5.5
	15-24	---	5.7-21	3.6-5.5
	24-28	---	---	---
	28-38	---	---	---

Table 18.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
GpD:				
Gilpin-----------------	0-8	---	3.1-9.1	3.6-5.5
	8-15	---	5.7-21	3.6-5.5
	15-24	---	5.7-21	3.6-5.5
	24-28	---	---	---
	28-38	---	---	---
Jo:				
Johnsburg--------------	0-13	---	3.1-5.9	4.5-6.5
	13-34	---	5.7-21	3.6-5.5
	34-55	---	5.7-21	3.6-5.5
	55-72	---	5.7-21	3.6-5.5
	72-78	---	---	---
La:				
Lawrence---------------	0-9	4.4-10.0	---	5.0-6.5
	9-24	6.0-14	---	5.0-6.5
	24-47	6.0-14	---	5.0-6.5
	47-72	6.0-21	---	5.0-7.0
Ld:				
Lindside---------------	0-8	8.1-15	---	5.1-7.8
	8-80	9.1-21	---	5.1-7.8
LoB:				
Lonewood---------------	0-15	---	2.6-4.7	4.5-5.5
	15-28	---	1.9-9.7	4.5-5.5
	28-48	---	2.9-9.7	4.5-5.5
	48-59	---	0.9-7.2	4.5-5.5
	59-66	---	---	---
	66-76	---	---	---
LoC:				
Lonewood---------------	0-15	---	2.6-4.7	4.5-5.5
	15-28	---	1.9-9.7	4.5-5.5
	28-48	---	2.9-9.7	4.5-5.5
	48-59	---	0.9-7.2	4.5-5.5
	59-66	---	---	---
	66-76	---	---	---
Me:				
Melvin-----------------	0-8	5.0-10	---	5.6-7.8
	8-22	5.0-15	---	5.6-7.8
	22-80	5.0-15	---	5.6-7.8
Mp:				
Melvin-----------------	0-8	5.0-10	---	5.6-7.8
	8-22	5.0-15	---	5.6-7.8
	22-80	5.0-15	---	5.6-7.8
NeB:				
Needmore---------------	0-6	9.7-15	---	5.5-6.5
	6-10	20-31	---	5.5-6.0
	10-24	20-31	---	5.6-6.5
	24-34	---	---	---

Table 18.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
NeC2:				
Needmore---------------	0-5	9.7-15	---	5.5-6.5
	5-26	20-31	---	5.5-6.0
	26-32	20-31	---	5.6-6.5
	32-36	---	---	---
NeD3:				
Needmore---------------	0-3	9.7-15	---	5.5-6.5
	3-7	20-31	---	5.5-6.0
	7-22	20-31	---	5.6-6.5
	22-32	---	---	---
NfD:				
Needmore---------------	0-5	9.7-15	---	5.5-6.5
	5-10	20-31	---	5.5-6.0
	10-24	20-31	---	5.6-6.5
	24-34	---	---	---
Nk:				
Newark-----------------	0-6	6.5-15	---	5.6-7.8
	6-30	9.5-21	---	5.6-7.8
	30-80	6.1-21	---	5.6-7.8
No:				
Nolin------------------	0-8	6.5-15	---	5.6-7.8
	8-42	9.5-21	---	5.6-7.8
	42-80	6.1-14	---	5.6-7.8
OtA:				
Otwood-----------------	0-8	---	4.9-9.1	4.5-5.4
	8-28	---	5.4-18	4.5-5.4
	28-69	---	5.7-18	4.5-5.4
	69-80	---	5.4-21	4.5-5.4
OtB:				
Otwood-----------------	0-8	---	4.9-9.1	4.5-5.4
	8-28	---	5.4-18	4.5-5.4
	28-69	---	5.7-18	4.5-5.4
	69-80	---	5.4-21	4.5-5.4
OtC2:				
Otwood-----------------	0-4	---	4.9-9.1	4.5-5.4
	4-24	---	5.4-18	4.5-5.4
	24-52	---	5.7-18	4.5-5.4
	52-80	---	5.4-21	4.5-5.4
Pq.				
Pits, quarry				
PrB:				
Pricetown--------------	0-7	---	2.0-5.1	4.5-5.4
	7-30	---	3.5-9.7	4.5-5.4
	30-80	---	5.5-15	4.5-5.4
PrC:				
Pricetown--------------	0-7	---	2.0-5.1	4.5-5.4
	7-30	---	3.5-9.7	4.5-5.4
	30-80	---	5.5-15	4.5-5.4

Table 18.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
RnB:				
Riney------------------	0-6	---	1.2-5.1	4.5-5.5
	6-42	---	3.5-9.7	4.5-5.5
	42-50	---	1.3-8.4	4.0-5.2
	50-56	---	---	---
RnC:				
Riney------------------	0-6	---	1.2-5.1	4.5-5.5
	6-42	---	3.5-9.7	4.5-5.5
	42-50	---	1.3-8.4	4.0-5.2
	50-56	---	---	---
Ro:				
Robertsville-----------	0-8	4.4-9.9	---	4.5-6.5
	8-16	6.4-14	---	4.5-6.5
	16-40	6.0-14	---	4.5-6.5
	40-80	6.0-14	---	5.4-6.5
RpD:				
Rock outcrop.				
Caneyville-------------	0-12	6.5-15	---	5.0-7.3
	12-30	20-42	---	5.0-7.8
	30-34	---	---	---
RsF:				
Rohan------------------	0-4	7.7-19	---	4.5-6.0
	4-16	15-22	---	5.0-5.8
	16-22	---	---	---
Sa:				
Sano-------------------	0-10	---	1.7-2.9	4.0-5.5
	10-21	---	2.3-4.2	4.5-5.5
	21-28	---	2.4-4.2	4.5-5.5
	28-81	---	3.0-9.7	4.5-5.5
Sk:				
Skidmore---------------	0-6	5.0-20	---	5.6-7.8
	6-28	5.0-10	---	5.6-7.8
	28-81	5.0-10	---	5.6-7.8
TaB:				
Tarklin----------------	0-7	---	2.1-5.3	4.5-5.5
	7-20	---	3.5-9.7	4.5-5.5
	20-60	---	3.5-9.7	4.5-5.5
	60-81	---	2.3-9.7	4.5-5.5
TaC:				
Tarklin----------------	0-7	---	2.1-5.3	4.5-5.5
	7-20	---	3.5-9.7	4.5-5.5
	20-60	---	3.5-9.7	4.5-5.5
	60-81	---	2.3-9.7	4.5-5.5
TeB:				
Teddy------------------	0-9	---	2.1-6.4	4.5-5.5
	9-24	---	3.5-9.7	4.5-5.5
	24-48	---	3.5-9.7	4.5-5.5
	48-80	---	5.3-15	4.5-5.5

Table 18.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
Ud.				
Udarents-Urban land				
Ur.				
Urban land				
Us:				
Urban land.				
Frederick	0-9	---	0.0-35	4.5-6.0
	9-36	---	0.0-35	4.5-6.0
	36-80	---	0.0-35	4.5-6.0
Pricetown	0-7	5.0-15	5.0-10	4.5-6.0
	7-30	5.0-15	5.0-10	4.5-6.0
	30-80	5.0-15	5.0-10	4.5-5.5
Uw:				
Urban land.				
Weikert	0-7	---	3.9-8.4	4.5-6.0
	7-15	---	4.6-13	4.5-5.6
	15-25	---	---	---
	25-31	---	---	---
Culleoka	0-13	8.1-15	---	5.1-6.0
	13-36	7.1-21	---	5.1-6.0
	36-46	---	---	---
W.				
Water				
WcC:				
Weikert	0-7	---	3.9-8.4	4.5-6.0
	7-15	---	4.6-13	4.5-5.6
	15-25	---	---	---
	25-31	---	---	---
Culleoka	0-4	8.1-15	---	5.1-6.0
	4-21	9.6-21	---	5.1-6.0
	21-23	---	---	---
WcD:				
Weikert	0-7	---	3.9-8.4	4.5-6.0
	7-15	---	4.6-13	4.5-5.6
	15-25	---	---	---
	25-31	---	---	---
Culleoka	0-4	8.1-15	---	5.1-6.0
	4-21	9.6-21	---	5.1-6.0
	21-23	---	---	---
Yo:				
Yosemite	0-9	9.1-21	---	5.6-7.8
	9-17	6.6-18	---	5.6-7.8
	17-30	6.6-25	---	5.6-7.8
	30-80	10-25	---	5.6-7.8

Table 19.—Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of 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	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
CaC:									
Carpenter-----------------	B								
		Jan-Dec	---	---	---	---	None	---	None
CbE:									
Carpenter-----------------	B								
		Jan-Dec	---	---	---	---	None	---	None
Lenberg-------------------	C								
		Jan-Dec	---	---	---	---	None	---	None
Cg:									
Chagrin-------------------	B								
		January	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
		February	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
		March	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
		April	---	---	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Occasional
		December	---	---	---	---	None	Very brief	Occasional
CwB:									
Culleoka------------------	B								
		Jan-Dec	---	---	---	---	None	---	None
Weikert-------------------	D								
		Jan-Dec	---	---	---	---	None	---	None
Du:									
Dunning-------------------	D								
		January	0.0-0.7	>6.0	---	---	None	---	Rare
		February	0.0-0.7	>6.0	---	---	None	---	Rare
		March	0.0-0.7	>6.0	---	---	None	---	Rare
		April	0.0-0.7	>6.0	---	---	None	---	Rare
		May	0.0-0.7	>6.0	---	---	None	---	None
		December	0.0-0.7	>6.0	---	---	None	---	Rare
EwB:									
Etowah--------------------	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
EwC:									
Etowah	B	Jan-Dec	---	---	---	---	None	---	None
FkB:									
Frankstown	B	Jan-Dec	---	---	---	---	None	---	None
FkC2:									
Frankstown	B	Jan-Dec	---	---	---	---	None	---	None
FkD2:									
Frankstown	B	Jan-Dec	---	---	---	---	None	---	None
FrB2:									
Frederick	C	Jan-Dec	---	---	---	---	None	---	None
FrC2:									
Frederick	C	Jan-Dec	---	---	---	---	None	---	None
FrD2:									
Frederick	C	Jan-Dec	---	---	---	---	None	---	None
FvE:									
Frederick	C	Jan-Dec	---	---	---	---	None	---	None
Caneyville	C	Jan-Dec	---	---	---	---	None	---	None
GaF:									
Garmon	C	Jan-Dec	---	---	---	---	None	---	None
GpB:									
Gilpin	C	Jan-Dec	---	---	---	---	None	---	None
GpC:									
Gilpin	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
GpD:									
Gilpin	C								
		Jan-Dec	---	---	---	---	None	---	None
Jo:									
Johnsburg	D								
		January	1.0-1.5	1.3-2.0	---	---	None	---	None
		February	1.0-1.5	1.3-2.0	---	---	None	---	None
		March	1.0-1.5	1.3-2.0	---	---	None	---	None
		April	1.0-1.5	1.3-2.0	---	---	None	---	None
		May	1.0-1.5	1.3-2.0	---	---	None	---	None
		December	1.0-1.5	1.3-2.0	---	---	None	---	None
La:									
Lawrence	C								
		January	1.0-1.5	1.3-2.0	---	---	None	---	None
		February	1.0-1.5	1.3-2.0	---	---	None	---	None
		March	1.0-1.5	1.3-2.0	---	---	None	---	None
		April	1.0-1.5	1.3-2.0	---	---	None	---	None
		May	1.0-1.5	1.3-2.0	---	---	None	---	None
		December	1.0-1.5	1.3-2.0	---	---	None	---	None
Ld:									
Lindside	C								
		January	1.5-2.0	>6.0	---	---	None	Brief	Occasional
		February	1.5-2.0	>6.0	---	---	None	Brief	Occasional
		March	1.5-2.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-2.0	>6.0	---	---	None	Brief	Occasional
		December	1.5-2.0	>6.0	---	---	None	Brief	Occasional
LoB:									
Lonewood	B								
		Jan-Dec	---	---	---	---	None	---	None
LoC:									
Lonewood	B								
		Jan-Dec	---	---	---	---	None	---	None
Me:									
Melvin	D								
		January	0.0-0.7	>6.0	---	---	None	Brief	Occasional
		February	0.0-0.7	>6.0	---	---	None	Brief	Occasional
		March	0.0-0.7	>6.0	---	---	None	Brief	Occasional
		April	0.0-0.7	>6.0	---	---	None	Brief	Occasional
		May	0.0-0.7	>6.0	---	---	None	Brief	Occasional
		December	0.0-0.7	>6.0	---	---	None	Brief	Occasional

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
Mp:									
Melvin	D								
		January	0.0	>6.0	0.5-3.0	Long	Frequent	---	None
		February	0.0	>6.0	0.5-3.0	Long	Frequent	---	None
		March	0.0	>6.0	0.5-3.0	Long	Frequent	---	None
		April	0.0	>6.0	0.5-3.0	Long	Frequent	---	None
		May	0.0-0.7	>6.0	0.5-3.0	Brief	Frequent	---	None
		December	0.0-0.7	>6.0	0.5-3.0	Brief	Frequent	---	None
NeB:									
Needmore	C								
		Jan-Dec	---	---	---	---	None	---	None
NeC2:									
Needmore	C								
		Jan-Dec	---	---	---	---	None	---	None
NeD3:									
Needmore	C								
		Jan-Dec	---	---	---	---	None	---	None
NfD:									
Needmore	C								
		Jan-Dec	---	---	---	---	None	---	None
Nk:									
Newark	C								
		January	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		February	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		March	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		April	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		May	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		December	1.0-1.5	>6.0	---	---	None	Brief	Occasional
No:									
Nolin	B								
		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
		December	---	---	---	---	None	Very brief	Occasional

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
OtA:									
Otwood---------------------	C								
		January	1.5-2.5	2.0-3.0	---	---	None	---	None
		February	1.5-2.5	2.0-3.0	---	---	None	---	None
		March	1.5-2.5	2.0-3.0	---	---	None	---	None
		April	1.5-2.5	2.0-3.0	---	---	None	---	None
		December	1.5-2.5	2.0-3.0	---	---	None	---	None
OtB:									
Otwood---------------------	C								
		January	1.5-2.5	2.0-3.0	---	---	None	---	None
		February	1.5-2.5	2.0-3.0	---	---	None	---	None
		March	1.5-2.5	2.0-3.0	---	---	None	---	None
		April	1.5-2.5	2.0-3.0	---	---	None	---	None
		December	1.5-2.5	2.0-3.0	---	---	None	---	None
OtC2:									
Otwood---------------------	C								
		January	1.3-2.0	1.7-2.5	---	---	None	---	None
		February	1.3-2.0	1.7-2.5	---	---	None	---	None
		March	1.3-2.0	1.7-2.5	---	---	None	---	None
		April	1.3-2.0	1.7-2.5	---	---	None	---	None
		December	1.3-2.0	1.7-2.5	---	---	None	---	None
Pq.									
Pits, quarry									
PrB:									
Pricetown------------------	B								
		Jan-Dec	---	---	---	---	None	---	None
PrC:									
Pricetown------------------	B								
		Jan-Dec	---	---	---	---	None	---	None
RnB:									
Riney----------------------	B								
		Jan-Dec	---	---	---	---	None	---	None
RnC:									
Riney----------------------	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
Ro:									
Robertsville	D								
		January	0.0-0.7	>6.0	---	---	None	---	Rare
		February	0.0-0.7	>6.0	---	---	None	---	Rare
		March	0.0-0.7	>6.0	---	---	None	---	Rare
		April	0.0-0.7	>6.0	---	---	None	---	Rare
		May	0.0-0.7	>6.0	---	---	None	---	Rare
		December	0.0-0.7	>6.0	---	---	None	---	Rare
RpD:									
Rock outcrop.									
Caneyville	C								
		Jan-Dec	---	---	---	---	None	---	None
RsF:									
Rohan	D								
		Jan-Dec	---	---	---	---	None	---	None
Sa:									
Sano	C								
		January	1.5-2.5	1.7-3.0	---	---	None	---	None
		February	1.5-2.5	1.7-3.0	---	---	None	---	None
		March	1.5-2.5	1.7-3.0	---	---	None	---	None
		April	1.5-2.5	1.7-3.0	---	---	None	---	None
		May	1.5-2.5	1.7-3.0	---	---	None	---	None
		December	1.5-2.5	1.7-3.0	---	---	None	---	None
Sk:									
Skidmore	B								
		January	4.0-5.0	>6.0	---	---	None	Very brief	Frequent
		February	4.0-5.0	>6.0	---	---	None	Very brief	Frequent
		March	4.0-5.0	>6.0	---	---	None	Very brief	Frequent
		April	4.0-5.0	>6.0	---	---	None	Very brief	Frequent
		May	---	---	---	---	None	Very brief	Frequent
		December	4.0-5.0	>6.0	---	---	None	Very brief	Frequent
TaB:									
Tarklin	C								
		January	1.5-2.5	2.0-3.0	---	---	None	---	None
		February	1.5-2.5	2.0-3.0	---	---	None	---	None
		March	1.5-2.5	2.0-3.0	---	---	None	---	None
		April	1.5-2.5	2.0-3.0	---	---	None	---	None
		December	1.5-2.5	2.0-3.0	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
TaC:									
Tarklin-------------------	C								
		January	1.5-2.5	2.0-3.0	---	---	None	---	None
		February	1.5-2.5	2.0-3.0	---	---	None	---	None
		March	1.5-2.5	2.0-3.0	---	---	None	---	None
		April	1.5-2.5	2.0-3.0	---	---	None	---	None
		December	1.5-2.5	2.0-3.0	---	---	None	---	None
TeB:									
Teddy---------------------	C								
		January	1.5-2.5	1.7-3.0	---	---	None	---	None
		February	1.5-2.5	1.7-3.0	---	---	None	---	None
		March	1.5-2.5	1.7-3.0	---	---	None	---	None
		April	1.5-2.5	1.7-3.0	---	---	None	---	None
		May	1.5-2.5	1.7-3.0	---	---	None	---	None
		December	1.5-2.5	1.7-3.0	---	---	None	---	None
Ud.									
Udarents-Urban land									
Ur.									
Urban land.									
Us:									
Urban land.									
Frederick-----------------	C								
		Jan-Dec	---	---	---	---	None	---	None
Pricetown-----------------	B								
		Jan-Dec	---	---	---	---	None	---	None
Uw:									
Urban land.									
Weikert-------------------	D								
		Jan-Dec	---	---	---	---	None	---	None
Culleoka------------------	B								
		Jan-Dec	---	---	---	---	None	---	None
WcC:									
Weikert-------------------	D								
		Jan-Dec	---	---	---	---	None	---	None
Culleoka------------------	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
WcD:									
Weikert-------------------	D								
		Jan-Dec	---	---	---	---	None	---	None
Culleoka------------------	B								
		Jan-Dec	---	---	---	---	None	---	None
Yo:									
Yosemite------------------	B								
		January	1.0-1.5	>6.0	---	---	None	Brief	Frequent
		February	1.0-1.5	>6.0	---	---	None	Brief	Frequent
		March	1.0-1.5	>6.0	---	---	None	Brief	Frequent
		April	1.0-1.5	>6.0	---	---	None	Brief	Frequent
		May	1.0-1.5	>6.0	---	---	None	Brief	Frequent
		December	1.0-1.5	>6.0	---	---	None	Brief	Frequent

Table 20.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In			
CaC:					
Carpenter	Paralithic bedrock	40-64	Very strongly cemented	Low	Moderate
CbE:					
Carpenter	Paralithic bedrock	40-64	Very strongly cemented	Low	Moderate
Lenberg	Paralithic bedrock	20-40	Very strongly cemented	Moderate	Moderate
Cg:					
Chagrin	---	---	---	High	Moderate
CwB:					
Culleoka	Lithic bedrock	20-40	Indurated	Low	Moderate
Weikert	Paralithic bedrock	12-18	Very strongly cemented	Low	Moderate
	Lithic bedrock	15-35	Indurated		
Du:					
Dunning	---	---	---	High	Low
EwB:					
Etowah	---	---	---	Low	Moderate
EwC:					
Etowah	---	---	---	Low	Moderate
FkB:					
Frankstown	Paralithic bedrock	40-60	Very strongly cemented	Low	Moderate
FkC2:					
Frankstown	Paralithic bedrock	40-60	Very strongly cemented	Low	Moderate
FkD2:					
Frankstown	Paralithic bedrock	40-60	Very strongly cemented	Low	Moderate
FrB2:					
Frederick	---	---	---	Moderate	Moderate
FrC2:					
Frederick	---	---	---	Moderate	Moderate
FrD2:					
Frederick	---	---	---	Moderate	Moderate
FvE:					
Frederick	---	---	---	Moderate	Moderate
Caneyville	Lithic bedrock	20-40	Indurated	Moderate	Low

Table 20.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In			
GaF:					
Garmon------------	Lithic bedrock	20-40	Indurated	Low	Moderate
GpB:					
Gilpin------------	Paralithic bedrock	20-40	Very strongly cemented	Low	Moderate
	Lithic bedrock	24-40	Indurated		
GpC:					
Gilpin------------	Paralithic bedrock	20-40	Very strongly cemented	Low	Moderate
	Lithic bedrock	24-40	Indurated		
GpD:					
Gilpin------------	Paralithic bedrock	20-40	Very strongly cemented	Low	Moderate
	Lithic bedrock	24-40	Indurated		
Jo:					
Johnsburg---------	Fragipan	22-36	---	High	High
	Paralithic bedrock	50-78	Very strongly cemented		
La:					
Lawrence----------	Fragipan	18-30	---	High	Moderate
Ld:					
Lindside----------	---	---	---	High	Low
LoB:					
Lonewood----------	Paralithic bedrock	40-72	Strongly cemented	Low	Moderate
	Lithic bedrock	40-72	Indurated		
LoC:					
Lonewood----------	Paralithic bedrock	40-72	Strongly cemented	Low	Moderate
	Lithic bedrock	40-72	Indurated		
Me:					
Melvin------------	---	---	---	High	Low
Mp:					
Melvin------------	---	---	---	High	Low
NeB:					
Needmore----------	Paralithic bedrock	20-40	Very strongly cemented	Moderate	Moderate
NeC2:					
Needmore----------	Paralithic bedrock	20-40	Very strongly cemented	Moderate	Moderate
NeD3:					
Needmore----------	Paralithic bedrock	20-40	Very strongly cemented	Moderate	Moderate
NfD:					
Needmore----------	Paralithic bedrock	20-40	Very strongly cemented	Moderate	Moderate

Table 20.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In			
Nk:					
Newark	---	---	---	High	Moderate
No:					
Nolin	---	---	---	Low	Moderate
OtA:					
Otwood	Fragipan	18-30	---	High	Moderate
OtB:					
Otwood	Fragipan	18-30	---	High	Moderate
OtC2:					
Otwood	Fragipan	18-30	---	High	Moderate
Pq.					
Pits, quarry					
PrB:					
Pricetown	---	---	---	Moderate	Moderate
PrC:					
Pricetown	---	---	---	Moderate	Moderate
RnB:					
Riney	Paralithic bedrock	40-65	Very strongly cemented	Low	Moderate
RnC:					
Riney	Paralithic bedrock	40-65	Very strongly cemented	Low	Moderate
Ro:					
Robertsville	Fragipan	15-30	---	High	Moderate
RpD:					
Rock outcrop.					
Caneyville	Lithic bedrock	20-40	Indurated	Moderate	Low
RsF:					
Rohan	Lithic bedrock	10-20	Indurated	Moderate	Moderate
Sa:					
Sano	Fragipan	24-31	---	High	High
Sk:					
Skidmore	---	---	---	High	Low
TaB:					
Tarklin	Fragipan	18-30	---	High	Moderate
TaC:					
Tarklin	Fragipan	18-30	---	High	Moderate
TeB:					
Teddy	Fragipan	18-30	---	High	Moderate
Ud.					
Udarents-Urban land					

Table 20.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
Ur. Urban land					
Us: Urban land.					
Frederick	---	---	---	Moderate	Moderate
Pricetown	---	---	---	Low	Moderate
Uw: Urban land	---	---	---	---	---
Weikert	Lithic bedrock	10-28	Indurated	Low	Moderate
	Paralithic bedrock	10-20	Very strongly cemented		
Culleoka	Lithic bedrock	20-40	Indurated	Low	Moderate
W. Water					
WcC: Weikert	Paralithic bedrock	10-25	Very strongly cemented	Low	Moderate
	Lithic bedrock	10-28	Indurated		
Culleoka	Lithic bedrock	20-22	Indurated	Low	Moderate
WcD: Weikert	Paralithic bedrock	10-25	Very strongly cemented	Low	Moderate
	Lithic bedrock	10-28	Indurated		
Culleoka	Lithic bedrock	20-22	Indurated	Low	Moderate
Yo: Yosemite	---	---	---	High	Low

Table 21.—Taxonomic Classification of the Soils

Soil name	Family or higher taxonomic class
Caneyville	Fine, mixed, active, mesic Typic Hapludalfs
Carpenter	Fine-loamy, mixed, semiactive, mesic Ultic Hapludalfs
Chagrin	Fine-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts
Culleoka	Fine-loamy, mixed, active, mesic Ultic Hapludalfs
Dunning	Fine, mixed, active, mesic Fluvaquentic Endoaquolls
Etowah	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Frankstown	Fine-loamy, mixed, semiactive, mesic Typic Hapludults
Frederick	Fine, mixed, semiactive, mesic Typic Paleudults
Garmon	Fine-loamy, mixed, semiactive, mesic Dystric Eutrudepts
Gilpin	Fine-loamy, mixed, active, mesic Typic Hapludults
Johnsburg	Fine-silty, mixed, active, mesic Aquic Fragiudults
Lawrence	Fine-silty, mixed, semiactive, mesic Aquic Fragiudalfs
Lenberg	Fine, mixed, semiactive, mesic Ultic Hapludalfs
Lindside	Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts
Lonewood	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Melvin	Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Needmore	Fine, mixed, active, mesic Ultic Hapludalfs
Newark	Fine-silty, mixed, active, nonacid, mesic Fluventic Endoaquepts
Nolin	Fine-silty, mixed, active, mesic Dystric Fluventic Eutrudepts
Otwood	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs
Pricetown	Fine-silty, siliceous, semiactive, mesic Typic Paleudults
Riney	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Robertsville	Fine-silty, mixed, semiactive, mesic Typic Fragiaqualfs
Rohan	Loamy-skeletal, mixed, semiactive, mesic Lithic Dystrudepts
Sano	Coarse-silty, siliceous, semiactive, mesic Glossic Fragiudults
Skidmore	Loamy-skeletal, mixed, semiactive, mesic Dystric Fluventic Eutrudepts
Tarklin	Fine-loamy, siliceous, semiactive, mesic Typic Fragiudults
Teddy	Fine-loamy, siliceous, semiactive, mesic Typic Fragiudults
Udarents	Loamy Udarents
Weikert	Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts
Yosemite	Loamy-skeletal, mixed, semiactive, nonacid, mesic Fluventic Endoaquepts

NRCS Accessibility Statement

The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.